

## Appendix A. References

### 2. Agriculture

Adams, C.D., S. Spitzer, and R.M. Cowan, 1996: Biodegradation of nonionic surfactants and effects of oxidative pretreatment. *Journal of Environmental Engineering*, **122**, 477-483.

Adams, S.R., K.E. Cockshull, and C.R.J. Cave, 2001: Effect of temperature on the growth and development of tomato fruits. *Annals of Botany*, **88**, 869-877.

Adams, R.M., B.A. McCarl, K. Segerson, C. Rosenzweig, K.J. Bryant, B.L. Dixon, R. Connor, R.E. Evenson, and D. Ojima, 1999: The economic effects of climate change on U.S. agriculture. In: *The Economics of Climate Change* [Mendelsohn, R. and J. Neumann (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 19-54.

Aerts, M., P. Cockrell, G. Nuessly, R. Raid, T. Schueneman, D. Seal, 1999: Crop profile for corn (sweet) in Florida. <http://www.impcenters.org/CropProfiles/docs/FLcorn-sweet.html>

Afinowicz, J.D., C.L. Munster, B.P. Wilcox, and R.E. Lacey, 2005: A process for assessing wooded plant cover by remote sensing. *Rangeland Ecology & Management*, **58**, 184-190.

Ainsworth, E. A. and S.P. Long, 2005: What have we learned from 15 years of free-air CO<sub>2</sub> enrichment (FACE)? A meta-analytic review of the responses of photosynthesis, canopy properties and plant production to rising CO<sub>2</sub>. *New Phytologist*, **165**, 351-372.

Ainsworth, E.A. and A. Rogers, 2007: The response of photosynthesis and stomatal conductance to rising [CO<sub>2</sub>]: mechanisms and environmental interactions. *Plant, Cell & Environment*, **30**, 258-270.

Ainsworth, E.A., P.A. Davey, C.J. Bernacchi, O.C. Dermody, E.A. Heaton, D.J. Moore, P.B. Morgan, S.A. Naidu, Hyung-Shim Yoo Ra, Xin-Guang Zhu, P.S. Curtis and S.P. Long, 2002: A meta-analysis of elevated [CO<sub>2</sub>] effects on soybean (*Glycine max*) physiology, growth and yield. *Global Change Biology*, **8**, 695-709.

Alagarwamy, G., K.J. Boote, L.H. Allen, Jr., and J.W. Jones, 2006: Evaluating the CROPGRO-Soybean model ability to simulate photosynthesis response to carbon dioxide levels. *Agronomy Journal*, **98**, 34-42.

Alagarwamy, G., and J. T. Ritchie, 1991. Phasic development in CERES-sorghum model, chapter 13, pp 143-152 In Hodges, T (ed.) *Predicting Crop Phenology*. CRC Press, Boca Raton.

Allard V., P.C.D. Newton, M. Lieffering J.F. Soussana, P. Grieu, and C. Matthews, 2004: Elevated CO<sub>2</sub> effects on decomposition processes in a grazed grassland. *Global Change Biology*, **10**, 1553-1564.

- Allen, L.H. Jr., and K.J. Boote, 2000: Crop ecosystem responses to climatic change: Soybean. Chapter 7. pp. 133-160. In K. R. Reddy and H. F. Hodges, *Climate Change and Global Crop Productivity*. CAB International., New York, NY.
- Allen, L.H. Jr., D. Pan, K.J. Boote, N.B. Pickering, and J.W. Jones, 2003: Carbon dioxide and temperature effects on evapotranspiration and water-use efficiency of soybean. *Agronomy Journal*, **95**,1071-1081.
- Allen, R.G., F.N. Gichuki, and C. Rosenzweig, 1991: CO<sub>2</sub>-induced climatic changes and irrigation-water requirements. *Journal of Water Resources Planning and Management*, **117**, 157-178.
- Allen R.G., I.A. Walter, R.L. Elliot, T.A. Howell, D. Itenfisu , M.E. Jensen, R.L. Snyder, 2005: *The ASCE Standardized Reference Evapotranspiration Equation*, American Society of Civil Engineers, Reston, VA.
- Alocilja, E.C., and J.T. Ritchie, 1991: A model for the phenology of rice. Chapter 16, pp 181-189. In Hodges, T (ed.) *Predicting Crop Phenology*. CRC Press, Boca Raton.
- Amthor, J.S., 1999: Increasing atmospheric CO<sub>2</sub> concentration, water use, and water stress: scaling up from the plant to the landscape. p. 33-59. In Y. Luo and H.A. Mooney (ed.) *Carbon Dioxide and Environmental Stress*, Academic Press, San Diego.
- Amthor, J.S., 2001: Effects of atmospheric CO<sub>2</sub> concentration on wheat yield: review of results from experiments using various approaches to control CO<sub>2</sub> concentration. *Field Crops Research*, **73**, 1-34.
- Amundson, J. L., T. L. Mader, R. J. Rasby, and Q. S. Hu, 2005: Temperature and temperature-humidity index effects on pregnancy rate in beef cattle. *Proceedings 17<sup>th</sup> Intl. Congress on Biometeorology*, September 2005, Detscher Wetterdienst, Offenbach, Germany.
- Amundson, J. L., T. L. Mader, R. J. Rasby, and Q. S. Hu., 2006: Environmental effects on pregnancy rate in beef cattle. *Journal of Animal Science*, **84**, 3415-3420.
- Andre, M., and H. du Cloux, 1993: Interaction of CO<sub>2</sub> enrichment and water limitations on photosynthesis and water use efficiency in wheat *Plant Physiology and Biochemistry*, **31**, 103-112.
- Archer S., D.S. Schimel, and E.A. Holland, 1995: Mechanisms of shrubland expansion: land use, climate or CO<sub>2</sub>? *Climatic Change*, **29**, 91-99.
- Ashmore. M.R., 2002: Effects of oxidants at the whole plant and community level. In: JNB Bell, M Treshow, eds, *Air Pollution and Plant Life*, John Wiley, Chichester, pp 89-118.
- Ashmore, M.R., 2005: Assessing the future global impacts of ozone on vegetation. *Plant Cell & Environment*, **28**, 949-964.

Augustine, D.J., and S.J. McNaughton, 2004: Temporal asynchrony in soil nutrient dynamics and plant production in a semiarid ecosystem. *Ecosystems* 7:829-840.

Augustine, D.J., and S.J. McNaughton, 2006: Interactive effects of ungulate herbivores, soil fertility, and variable rainfall on ecosystem processes in a semi-arid savanna. *Ecosystems* 9:1-16.

Austin A.T., and L. Vivanco, 2006: Plant litter decomposition in a semi-arid ecosystem controlled by photodegradation. *Nature*, **442**, 555-558.

Ayers, E., D.H. Wall, B.L. Simmons, C.B. Field, J. Roy, D. Milchunas and J.A. Morgan. Belowground grassland herbivores are surprisingly resistant to elevated atmospheric CO<sub>2</sub> concentrations. *Soil Biology and Biochemistry*. (in press, accepted November 29, 2007)

Badeck F.W., A. Bondeau, K. Bottcher, D. Doktor, W. Lucht, J. Schaber, and S. Sitch, 2004: Responses of spring phenology to climate change. *New Phytologist*, **162**, 295-309.

Badu-Apraku, B., R.B. Hunter, and M. Tollenaar, 1983: Effect of temperature during grain filling on whole plant and grain yield in maize (*Zea mays* L.). *Canadian Journal of Plant Science*, **63**, 357-363.

Baker B.B., J.D., Hanson, R.M. Bourdon and J.B. Eckert, 1993: The potential effects of climate change on ecosystem processes and cattle production on U.S. rangelands. *Climatic Change*, **25**, 97-117.

Baker, J.T., and L.H. Allen, Jr., 1993a: Contrasting crop species responses to CO<sub>2</sub> and temperature: rice, soybean, and citrus. *Vegetatio*, **104/105**, 239-260.

Baker, J.T., and L.H. Allen, Jr. 1993b: Effects of CO<sub>2</sub> and temperature on rice: A summary of five growing seasons. *Journal of Agricultural Meteorology*, **48**, 575-582.

Baker, J.T., L.H. Allen, Jr., and K.J. Boote, 1989: Response of soybean to air temperature and carbon dioxide concentration, *Crop Science*, **29**, 98-105.

Baker, J.T., K.J. Boote, and L.H. Allen, Jr., 1995: Potential climate change effects on rice: Carbon dioxide and temperature. pp. 31-47. In C. Rosenzweig, J. W. Jones, and L. H. Allen, Jr. (eds.). *Climate Change and Agriculture: Analysis of Potential International Impacts*, ASA Spec. Pub. No. 59, ASA-CSSA-SSSA, Madison, Wisconsin, USA.

Balaguer, L., J.D. Barnes, A.Panicucci, and A.M. Borland,1995: Production and utilization of assimilates in wheat (*Triticum aestivum* L.) leaves exposed to elevated O<sub>3</sub> and/or CO<sub>2</sub>. *New Phytologist*,**129**, 557-568.

Barnes, J.D., J.H. Ollerenshaw, and C.P. Whitfield, 1995: Effects of elevated CO<sub>2</sub> and/or O<sub>3</sub> on growth, development and physiology of wheat (*Triticum aestivum* L.). *Global Change Biology*, **1**, 101-114.

Bartlett, D.T., L.A. Torrell, N.R. Rimbey, L.W. Van Tassel, and D.W. McCollum, 2002: Valuing grazing use on public land. *Journal of Range Management*, **55**, 426-438.

Batts, G.R., J.I.L. Morison, R.H. Ellis, P. Hadley, and T.R. Wheeler, 1997: Effects of CO<sub>2</sub> and temperature on growth and yield of crops of winter wheat over several seasons. *European Journal of Agronomy*, **7**, 43-52.

Baylis, M., and A.K. Githeko, 2006: T7.3 The effects of climate change on infectious diseases of animals. Foresight:  
[http://www.foresight.gov.uk/previous\\_projects/detection\\_and\\_identification\\_of\\_infectious\\_diseases/Reports\\_and\\_Publications/Final\\_Reports/Index.html](http://www.foresight.gov.uk/previous_projects/detection_and_identification_of_infectious_diseases/Reports_and_Publications/Final_Reports/Index.html)

Bender, J., U. Hertstein, and C. Black, 1999: Growth and yield responses of spring wheat to increasing carbon dioxide, ozone and physiological stresses: a statistical analysis of 'ESPACE-wheat' results. *European Journal of Agronomy*, **10**, 185-195.

Bernacchi, C.J., B.A. Kimball, D.R. Quarles, S.P. Long, and D.R. Ort, 2007: Decreases in stomatal conductance of soybean under open-air elevation of CO<sub>2</sub> are closely coupled with decreases in ecosystem evapotranspiration. *Plant Physiology*, **143**, 134-144.

Bernacchi, C.J., A.D.B. Leakey, L.E. Heady, P.B. Morgan, F.G. Dohleman, J.M. McGrath, K.M. Gillespie, V.E. Wittig, A. Rogers, S.P. Long, and D.R. Ort, 2006: Hourly and seasonal variation in photosynthesis and stomatal conductance of soybean grown at future CO<sub>2</sub> and ozone concentrations for 3 years under fully open-air field conditions. *Plant, Cell & Environment*, **29**, 2077-2090.

Bestelmeyer, B.T., J.E. Herrick, J.R. Brown, D.A. Trujillo, and K.M. Havstad. 2004. Land management in the American Southwest: a state-and-transition approach to ecosystem complexity. *Environmental Management* 34:38-51.

Billings S.A., S.M. Schaeffer, and R.D. Evans, 2004: Soil microbial activity and N availability with elevated CO<sub>2</sub> in Mojave Desert soils. *Global Biogeochemical Cycles*, 18, GA1011, doi:10.1029/2003GB002137.

Black, V.J., C.R. Black, J.A. Roberts, and C.A. Stewart, 2000: Impact of ozone on the reproductive development of plants. *New Phytologist*, **147**, 421-447.

Bolhuis, C.G., and W. deGroot, 1959: Observations on the effect of varying temperature on the flowering and fruit set in three varieties of groundnut. *Netherlands Journal of Agricultural Science*, **7**, 317-326.

Bond, W.J., and G.F. Midgley, 2000. A proposed CO<sub>2</sub>-controlled mechanism of woody plant invasion in grasslands and savannas. *Global Change Biology*, **6**, 865-869

Booker, F.L., K.O. Burkey, W.A. Pursley, and A.S. Heagle. 2007: Elevated carbon dioxide and ozone effects on peanut: I. Gas-exchange, biomass, and leaf chemistry. *Crop Science*, **47**, 1475-1487.

Boote, K.J., J.W. Jones, and N.B. Pickering, 1996: Potential uses and limitations of crop models. *Agronomy Journal*, **88**, 704-716

Boote, K.J., J.W. Jones, and G. Hoogenboom, 1998: Simulation of crop growth: CROPGRO Model. Chapter 18. pp. 651-692. In R.M. Peart and R.B. Curry (eds.). *Agricultural Systems Modeling and Simulation*. Marcel Dekker, Inc, New York.

Boote, K.J., J.W. Jones, W.D. Batchelor, E.D. Nafziger, and O. Myers, 2003: Genetic coefficients in the CROPGRO-soybean model: Links to field performance and genomics. *Agronomy Journal*, **95**, 32-51.

Boote, K.J., L.H. Allen, P.V.V. Prasad, J.T. Baker, R.W. Gesch, A.M. Snyder, D. Pan, and J.M.G. Thomas, 2005: Elevated temperature and CO<sub>2</sub> impacts on pollination, reproductive growth, and yield of several globally important crops. *Journal of Agricultural Meteorology*, **60**, 469-474.

Boote, K.J., N.B. Pickering, and L.H. Allen, Jr., 1997: Plant modeling: Advances and gaps in our capability to project future crop growth and yield in response to global climate change. pp 179-228. In: L.H. Allen, Jr., M.B. Kirkham, D.M. Olszyk, and C.E. Whitman (eds.) *Advances in Carbon Dioxide Effects Research*. ASA Special Publication No. 61, ASA-CSSA-SSSA, Madison, WI.

Booth D.T., and S.E. Cox, 2006: Very-large scale aerial photography for rangeland monitoring. *Geocarto International*, **21**, 27-34.

Bowler J.M., and M.C. Press, 1996: Effects of elevated CO<sub>2</sub>, nitrogen form and concentration on growth and photosynthesis of a fast- and slow-growing grass. *New Phytologist*, **132**, 391-401.

Briggs, J.M., A.K. Knapp, J.M. Blair, J.L. Heisler, G.A. Hoch, M.S. Lett, and J.K. McCarron, 2005: An ecosystem in transition: Causes and consequences of the conversion of mesic grassland to shrubland. *BioScience* **55**, 243-254.

Briske D.D., S.D. Fuhlendorf, and F.E. Smeins, 2005: State-and-transition models, thresholds, and rangeland health: A synthesis of ecological concepts and perspectives. *Rangeland Ecology & Management*, **58**, 1-10.

Brown, P.W., 1987. *User's Guide to the Arizona Meteorological Network*. City of Phoenix, Water Conservation and Resource Div. and Arizona Cooperative Extension, Phoenix, AZ.

Brown-Brandl, T.M., R. A. Eigenberg, and J. A. Neinaber. 2006. Heat stress risk factors of feedlot heifers. *Livestock Science* **105**, 57-68.

- Brown-Brandl, T.M., J.A. Nienaber, R.A. Eigenberg, G.L. Hahn and H. Freetly, 2003: Thermoregulatory responses of feeder cattle. *J. Therm. Biol.*, **28**, 149-157.
- Bunce, J.A., 2000: Acclimation of photosynthesis to temperature in eight cool and warm climate herbaceous C3 species: Temperature dependence of parameters of a biochemical photosynthesis model. *Photosynthesis Research*, **63**, 59-67.
- Burkey, K.O., F.L. Booker, W.A. Pursley, and A.S. Heagle, 2007: Elevated carbon dioxide and ozone effects on peanut: II. Seed yield and quality. *Crop Science*, **47**, 1488-1497.
- Butterfield, H.S., and C.M. Malmstron, 2006: Experimental use of remote sensing by private range managers and its influence on management decisions. *Rangeland Ecology & Management*, **59**, 541-548.
- Caley, C.Y., C.M. Duffus, and B. Jeffcoat, 1990: Effects of elevated temperature and reduced water uptake on enzymes of starch synthesis in developing wheat grains. *Australian Journal of Plant Physiology* **17**, 431-439.
- Campbell, B.D., D.M.S. Smith, and G.M. Mckee, 1997. Elevated CO<sub>2</sub> and water supply interactions in grasslands: A pastures and rangelands management perspective. *Global Change Biology*, **3**, 177-187.
- Chapin, F.S. III, G.R. Shaver, A.E. Giblin, K.J. Nadelhoffer, and J.A. Laundre, 1995: Responses of arctic tundra to experimental and observed changes in climate. *Ecology*, **76**, 694-711.
- Chowdhury, S.I.C., and I.F. Wardlaw, 1978: The effect of temperature on kernel development in cereals. *Australian Journal Agricultural Research*, **29**, 205-233.
- Cleland, E.E., N.R. Chiariello, S.P. Loarie, H.A. Mooney, and C.B. Field, 2006: Diverse responses of phenology to global changes in a grassland ecosystem. *Proceedings of the National Academy of Sciences*, **103**, 13740-13744.
- Coakley, S.M., H. Scherm, and S. Chakraborty, 1999: Climate change and plant disease management. *Annual Review of Phytopathology*, **37**, 399-426.
- Commuri, P.D., and R.D. Jones, 2001: High temperatures during endosperm cell division in maize: a genotypic comparison under *in vitro* and field conditions. *Crop Science*, **41**, 1122-1130.
- Cotrufo, M.F., P. Ineson, and A. Scott. 1998: Elevated CO<sub>2</sub> reduces the nitrogen concentration of plant tissues. *Global Change Biology*, **4**, 43-54.
- Coviella, C., and J. Trumble, 1999: Effects of elevated atmospheric carbon dioxide on insect-plant interactions. *Conservation Biology*, **13**, 700-712.
- Cox, F.R., 1979: Effect of temperature treatment on peanut vegetative and fruit growth. *Peanut Sci*, **6**, 14-17.

- Crafts-Brandner, S.J., and M.E. Salvucci, 2002: Sensitivity of photosynthesis in a C-4 plant, maize, to heat stress. *Plant Physiology*, **129**, 1773-1780.
- Craufurd, P.Q., P.V.V. Prasad, and V.G. Kakani, 2003: Heat tolerance in groundnut. *Field Crops Research*, **80**, 63-77.
- Curtis, P.S. and X. Wang, 1998: A meta-analysis of elevated CO<sub>2</sub> effects on woody plant mass, form, and physiology. *Oecologia*, **113**, 299-313.
- Dahl, B.E., and R.E. Sosebee, 1991: Impacts of weeds on herbage production. In: James, L.F., J.O. Evans, M.H. Ralphs, and R.D. Child (eds.) *Noxious Range Weeds*. Westview, Boulder, pp. 153-164.
- Davis, M.S., T.L. Mader, S.M. Holt, and A.M. Parkhurst, 2003: Strategies to reduce feedlot cattle heat stress: effects on tympanic temperature. *Journal of Animal Science*, **81**, 649-661.
- Dentener F., D. Stevenson, J. Cofala, R. Mechler, M. Amann, P. Bergamaschi, F. Raes, and R. Derwent, 2005: The impact of air pollutant and methane emission controls on tropospheric ozone and radiative forcing: CTM calculations for the period 1990-2030. *Atmospheric Chemistry and Physics*, **5**, 1731-1755.
- Dermody, O., S.P. Long, and E.H. DeLucia, 2006: How does elevated CO<sub>2</sub> or ozone affect the leaf-area index of soybean when applied independently? *New Phytologist*, **169**, 145-155.
- Dijkstra, F.A., S.E. Hobbie, and P. Reich, 2006: Soil processes affected by sixteen grassland species grown under different environmental conditions. *Soil Science of America Journal*, **70**, 770-777.
- Donnelly, A., M.B. Jones, J.I. Burke, and B. Schnieders, 2000: Elevated CO<sub>2</sub> provides protection from O<sub>3</sub> induced photosynthetic damage and chlorophyll loss in flag leaves of spring wheat (*Triticum aestivum* L., cv. 'Minaret'). *Agriculture, Ecosystems & Environment*, **80**, 159-168.
- Downs, R.W. 1972: Effect of temperature on the phenology and grain yield of *Sorghum bicolor*. *Australian Journal Agricultural Research*, **23**, 585-594.
- De Koning, A.N.M. 1996: Quantifying the responses to temperature of different plant processes involved in growth and development of glasshouse tomato. *Acta Horticulturae*, **406**, 99-104.
- Drake, B.G., M.A. González-Meler, and S.P. Long, 1997: More efficient plants: a consequence of rising atmospheric CO<sub>2</sub>? *Annual Review of Plant Physiology and Plant Molecular Biology*, **48**, 609-639.
- Duchowski, P., and A. Brazaityte, 2001: Tomato photosynthesis monitoring in investigations on tolerance to low temperatures. *Acta Hort*, **562**, 335-339.

- Duff, G.C., and M.L. Galyean, 2007: Board-invited review: Recent advances in management of highly stressed, newly received feedlot cattle. *Journal of Animal Science*, **85**, 823-840.
- Dukes, J.S., N.R. Chiariello, E.E. Cleland, L.A. Moore, M.R. Shaw, S. Thayer S, T. Tobeck, H.A. Mooney, and C.B. Field, 2005: Responses of grassland production to single and multiple global environmental changes. *PLoS Biology*, **3**, e319.
- Dupuis, L. and C. Dumas, 1990: Influence of temperature stress on *in vitro* fertilization and heat shock protein synthesis in maize (*Zea mays* L.) reproductive systems. *Plant Physiology*, **94**, 665-670.
- Edwards, G.E., and N.R. Baker, 1993: Can CO<sub>2</sub> assimilation in maize be predicted accurately from chlorophyll fluorescence analysis. *Photosynthesis Research*, **37**, 89-102.
- Eigenberg, R.A., T.M. Brown-Brandl, J.A. Nienaber and G.L. Hahn, 2005: Dynamic response indicators of heat stress in shaded and non-shaded feedlot cattle. Part 2: Predictive relationships. *Biosystems Engineering*, **91**, 111-118.
- Egli, D.B., and I.F. Wardlaw, 1980: Temperature response of seed growth characteristics of soybean. *Agronomy Journal*, **72**, 560-564.
- Ehleringer, J.R., S.L. Phillips, W.S.F. Schuster, and D.R. Sandquist, 1991: Differential utilization of summer rains by desert plants. *Oecologia*, **88**, 430-434.
- Elagoz, V., and W.J. Manning, 2005: Responses of sensitive and tolerant bush beans (*Phaseolus vulgaris* L.) to ozone in open-top chambers are influenced by phenotypic differences, morphological characteristics, and the chamber environment. *Environmental Pollution*, **136**, 371-383
- Epstein, H.E., I.C. Burke, and W.K. Lauenroth, 2002: Regional patterns of decomposition and primary production rates in the U.S. Great Plains. *Ecology*, **83**, 320-327.
- Epstein, H.E., R.A. Gill, J.M. Paruelo, W.K. Lauenroth, G.J. Jia, and I.C. Burke, 2002: The relative abundance of three plant functional types in temperate grasslands and shrublands of North and South America: effects of projected climate change. *Journal of Biogeography*, **29**, 875-888.
- Everitt, J.H., C. Yang, R.S. Fletcher, and D.L. Drawe, 2006: Evaluation of high-resolution satellite imagery for assessing rangeland resources in south Texas. *Rangeland Ecology & Management*, **59**, 30-37.
- Farquhar, G.D, and S. von Cammerer, 1982: Modelling of photosynthetic response to environmental conditions. P. 549-587. In O.L. Lange et al. (eds.) *Encyclopedia of Plant Physiology*. NS. Vol. 12B. Physiological Plant Ecology II. Springer-Verlag, Berlin.

Fay, P.A., J.D. Carlisle, A.K. Knapp, J.M. Blair, and S.L. Collins, 2003: Productivity responses to altered rainfall patterns in a C4-dominated grassland. *Oecologia*, **137**, 245-251.

Field, C.B., C.P. Lund, N.R. Chiariello, and B.E. Mortimer, 1997: CO<sub>2</sub> effects on the water budget of grassland microcosm communities. *Global Change Biology*, **3**, 197-206.

Finnan, J.M., A. Donnelly, J.L. Burke, and M.B. Jones, 2002: The effects of elevated concentrations of carbon dioxide and ozone on potato (*Solanum tuberosum* L.) yield. *Agriculture, Ecosystems & Environment*, **88**, 11-22.

Fonseca, A.E., and M.E. Westgate, 2005: Relationship between desiccation and viability of maize pollen. *Field Crops Research*, **94**, 114-125.

Food and Agriculture Organization, 2000: Pastoralism in the new millennium, *Food and Agriculture Organization of the United Nations, Animal Production and Health Paper 150*, 93pp, Rome, Italy.

Frank, K.L. 2001: Potential effects of climate change on warm season voluntary feed intake and associated production of confined livestock in the United States. M.S. thesis. Kansas State University, Manhattan.

Frank, K.L., T.L. Mader, J.A. Harrington, G.L. Hahn, and M.S. Davis, 2001: Climate change effects on livestock production in the Great Plains. *Proceedings 6th International Livestock Environment Symposium*, American Society of Agricultural Engineers, St. Joseph, MI: 351-358.

Gaughan, J.B., T.L. Mader, S.M. Holt, M.J. Jose, and K.J. Rowan, 1999: Heat tolerance of Boran and Tuli crossbred steers. *Journal of Animal Science*, **77**, 2398-2405.

Gaughan, J.B., S.M. Holt, G.L. Hahn, T.L. Mader, and R. Eigenberg, 2000: Respiration rate – is it a good measure of heat stress in cattle? *Asian-Australian Journal of Animal Science*. 13:329-332 (ARD No. 12903).

Gaughan, J.B., W.M. Kreikemeier, and T.L. Mader, 2005: Hormonal growth-promotant effects on grain-fed cattle maintained under different environments. *International Journal of Biometeorology*, **49**, 396-402 (ARD No. 14392).

Gaughan, J.B., J. Goopy and J. Spark, 2002: Excessive heat load index for feedlot cattle. Meat and Livestock-Australia Project Rept, FLOT.316. MLA, Ltd., Locked Bag 991, N. Sydney NSW, 2059 Australia.

Gielen, B., H.J. De Boeck, C.M.H.M. Lemmens, R. Valcke, I. Nijs, and R. Ceulemans, 2005: Grassland species will not necessarily benefit from future elevated air temperatures: a chlorophyll fluorescence approach to study autumn physiology. *Physiologia Plantarum*, **125**, 52-63.

- Gill, R.A., L.J. Anderson, H.W. Polley, H.B. Johnson, and R.B. Jackson, 2006: Potential nitrogen constraints on soil carbon sequestration under low and elevated atmospheric CO<sub>2</sub>. *Ecology*, **87**, 41-52.
- Goho, A. 2004: Gardeners anticipate climate change. *American Gardener*, **83**, 36-41.
- Goudriaan, J., and M.H. Unsworth, 1990: Implications of increasing carbon dioxide and climate change for agricultural productivity and water resources. P. 111-130. In B. A. Kimball et al. (eds). *Impact of Carbon Dioxide, Trace Gases, and Climate Change on Global Agriculture*. ASA Spec. Publ. **53**. ASA, Madison, WI.
- Greer, D.H., W.A. Laing, and B.D. Campbell, 1995: Photosynthetic Responses of Thirteen Pasture Species to Elevated CO<sub>2</sub> and Temperature. *Australian Journal of Plant Physiology* **22**, 713-22.
- Grimm, S.S., J.W. Jones, K.J. Boote, and D.C. Herzog, 1994: Modeling the occurrence of reproductive stages after flowering for four soybean cultivars. *Agronomy Journal*, **86**, 31-38.
- Grimm, S.S., J.W. Jones, K.J. Boote, and J.D. Hesketh, 1993, Parameter estimation for predicting flowering date of soybean cultivars. *Crop Science*, **33**, 137-144.
- Gross, Y., and J. Kigel, 1994: Differential sensitivity to high temperature of stages in the reproduction development of common beans (*Phaseolus vulgaris* L.). *Field Crops Research*, **36**, 201-212.
- Hahn, G.L., 1981: Housing and management to reduce climatic impacts on livestock. *Journal of Animal Science*, **52**, 175-186.
- Hahn, G.L., 1995: Environmental management for improved livestock performance, health and well-being. *Japanese Journal of Livestock Management*, **30**, 113-127.
- Hahn, G.L., 1999: Dynamic responses of cattle to thermal heat loads. *Journal of Animal Science*, **77**, 10-20.
- Hahn, G.L., Y.R. Chen, J.A. Nienaber, R.A. Eigenberg and A.M. Parkhurst, 1992: Characterizing animal stress through fractal analysis of thermoregulatory responses. *Journal of Thermal Biology*, **17**, 115-120.
- Hahn, G.L. and T.L. Mader, 1997: Heat waves in relation to thermoregulation, feeding behavior and mortality of feedlot cattle. *Proceedings 5th International Livestock Environment Symposium*, American Society of Agricultural Engineers, St. Joseph, MI: 563-571.
- Hahn, G.L., T.L. Mader, J.B. Gaughan, Q. Hu and J.A. Nienaber, 1999: Heat waves and their impacts on feedlot cattle. *Proceedings 15th International Congress of Biometeorology and the International Congress on Urban Climatology*, Sydney, Australia.

Hahn, L., T. Mader, D. Spiers, J. Gaughan, J. Nienaber, R. Eigenberg, T. Brown-Brandl, Q. Hu, D. Griffin, L. Hungerford, A. Parkhurst, M. Leonard, W. Adams, and L. Adams, 2001: Heat wave impacts on feedlot cattle: Considerations for improved environmental management. *Proceedings 6th International Livestock Environment Symposium*, American Society of Agricultural Engineers, St. Joseph, MI: 129-130.

Hall, A.E., 1992: Breeding for heat tolerance. P. 129-168. In: *Plant breeding reviewers*. Vol. **10**. John Wiley & Sons, New York.

Hamilton, J.G., O. Dermody, M. Aldea, A.R. Zangerl, A. Rogers, M.R. Berenbaum, and E.H. DeLucia, 2005: Anthropogenic changes in tropospheric composition increase susceptibility of soybean to insect herbivory. *Environmental Entomology*, **34**, 479-455.

Hatfield, J.L., and J.H. Prueger, 2004: Impact of Changing Precipitation Patterns on Water Quality. *Journal Soil and Water Conservation*, **59**, 51-58.

Heagle A.S., V.M. Lesser, J.O. Rawlings, W.W. Heck, and R.B. Philbeck, 1986: Response of soybeans to chronic doses of ozone applied as constant or proportional additions to ambient air. *Phytopathology* **76**, 51-56.

Heagle, A.S., 1989: Ozone and crop yield. *Annual Review Phytopathology*, **27**, 397-423.

Heitschmidt, R.K., and M.R. Haferkamp, 2003: Ecological consequences of drought and grazing on grasslands of the northern Great Plains. In: Weltzin JF, McPherson GR (eds) *Changing Precipitation Regimes and Terrestrial Ecosystems*, University of Arizona Press, Tucson, pp. 107-126.

Henry, H.A.L., J.D. Juarez, C.B. Field, and P.M. Vitousek, 2005: Interactive effects of elevated CO<sub>2</sub>, N deposition and climate change on extracellular enzyme activity and soil density fractionation in a California annual grassland. *Global Change Biology*, **11**, 1808-1815.

Herrero, M.P., and R.R. Johnson, 1980: High temperature stress and pollen viability in maize. *Crop Science*, **20**, 796-800.

Hesketh, J.D., D.L. Myhre, and C.R. Willey, 1973: Temperature control of time intervals between vegetative and reproductive events in soybeans. *Crop Science*, **13**, 250-254.

High Plains Regional Climate Center, 2000. <http://www.hprcc.unl.edu/>

Hileman, D.R., G. Huluka, P.K. Kenjige, N. Sinha, N.C. Bhattacharya, P.K. Biswas, K.F. Lewin, J. Nagy, and G.R. Hendrey, 1994: Canopy photosynthesis and transpiration of field-grown cotton exposed to free-air CO<sub>2</sub> enrichment (FACE) and differential irrigation. *Agricultural and Forest Meteorology*, **70**, 189-207.

Hodges, T., and J.T. Ritchie, 1991: The CERES-Wheat phenology model, chapter 12, pp 115-131. In Hodges, T (ed.) *Predicting Crop Phenology*. CRC Press, Boca Raton.

Horie, T., J. T. Baker, H. Nakagawa, T. Matsui, and H. Y. Kim, 2000. Crop ecosystem responses to climatic change: Rice. Chapter 5. pp. 81-106. *In* K. R. Reddy and H. F. Hodges, *Climate Change and Global Crop Productivity*. CAB International., New York, NY.

Hubbard, K.G., D.E. Stooksbury and G.L. Hahn, 1999: A climatological perspective on feedlot cattle performance and mortality related to the Temperature-Humidity Index. *Journal of Production Agriculture*, **12**, 650-653.

Hunsaker, D.J., B.A. Kimball, P.J. Pinter, Jr., G.W. Wall, and R.L. LaMorte, 1997: Soil water balance and wheat evapotranspiration as affected by elevated CO<sub>2</sub> and variable soil nitrogen. *In*: *Annual Research Report 1997*. U.S. Water Conservation Laboratory, ASDA, ARS, Phoenix, AZ, pp. 67-70.

Hungate, B.A., F.S. Chapin III, H. Zhong, E.A. Holland, and C.B. Field, 1997: Stimulation of grassland nitrogen cycling under carbon dioxide enrichment. *Oecologia*, **109**, 149-153.

Hungate, B.A., C.H. Jaeger III, G. Gamara, F.S. Chapin III, and C.B. Field, 2000: Soil microbiota in two annual grasslands: responses to elevated atmospheric CO<sub>2</sub>. *Oecologia*, **124**, 589-598.

Huxman, T.E., and S.D. Smith, 2001. Photosynthesis in an invasive grass and native forb at elevated CO<sub>2</sub> during an El Niño year in the Mojave Desert. *Oecologia*, **128**, 193-201.

Idso, S.B., B.A. Kimball, M.G. Anderson, and J.R. Mauney, 1987: Effects of atmospheric CO<sub>2</sub> enrichment on plant growth: The interactive role of air temperature. *Agriculture, Ecosystems & Environment*, **20**, 1-10.

IPCC, 2001: *Climate Change 2001: The Scientific Basis, Contribution from Working Group I to the Third Assessment Report, Intergovernmental Panel for Climate Change*. Cambridge University Press, Cambridge, UK.

IPCC, 2007. *Climate Change 2007: The Physical Science Basis, Contribution from Working Group I to the Fourth Assessment Report, Policy Maker Summary*. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK.

Izaurrealde, R.C., N.J. Rosenberg, R.A. Brown, and A.M. Thomson, 2003: Integrated assessment of Hadley Centre climate change projections on water resources and agricultural productivity in the conterminous United States. II. Regional agricultural productivity in 2030 and 2095. *Agricultural and Forest Meteorology*, **117**, 97-122.

Jifon, J., and D.W. Wolfe, 2005: High temperature-induced sink limitation alters growth and photosynthetic acclimation response to elevated CO<sub>2</sub> in beans. *Journal of the American Society for Horticultural Science*, **130**, 515-520

Jones, P., J.W. Jones, and L.H. Allen, Jr., 1985: Seasonal carbon and water balances of soybeans grown under stress treatments in sunlit chambers. *Transactions ASAE*, **28**, 2021-2028.

Jones, R.J., S. Ouattar, and R.K. Crookston, 1984: Thermal environment during endosperm cell division and grain filling in maize: Effects on kernel growth and development *in vitro*. *Crop Science*, **24**, 133-137.

Kakani, V.G., K.R. Reddy, S.Koti, T.P. Wallace, P.V.V. Prasad, V.R. Reddy, and D. Zhao, 2005: Differences in *in vitro* pollen germination and pollen tube growth of cotton cultivars in response to high temperature. *Annals of Botany*, **96**, 59-67.

Kandeler, E., A.R. Mosier, J.A. Morgan, D.G. Milchunas, J.Y. King, S. Rudolph, and D. Tscherko, 2006: Response of soil microbial biomass and enzyme activities to the transient elevation of carbon dioxide in a semi-arid grassland. *Soil Biology & Biochemistry*, **38**, 2448-2460.

Kimball, B.A., 1983: Carbon dioxide and agricultural yield. An assemblage of 430 prior observations. *Agronomy Journal*, **75**, 779-788.

Kimball, B.A., 2007: Global change and water resources. In Lascano, R. J., Sojka R. E. (eds.) *Irrigation of Agricultural Crops*. Agronomy Monograph 30, 2<sup>nd</sup> Edition. ASA-CSSA-SSSA. Madison, WI. pp. 627-653.

Kimball, B.A., and C.J. Bernacchi, 2006: Evapotranspiration, canopy temperature, and plant water relations. In: *Managed Ecosystems and CO<sub>2</sub>: Case Studies, Processes, and Perspectives* pp. 311-324. Springer-Verlag, Berlin.

Kimball, B.A., and S.B. Idso, 1983: Increasing atmospheric CO<sub>2</sub>: Effects on crop yield, water use, and climate. *Agricultural Water Management*, **7**, 55-72.

Kimball, B.A., and J.R. Mauney, 1993: Response of cotton to varying CO<sub>2</sub>, irrigation, and nitrogen: yield and growth. *Agronomy Journal*, **85**, 706-712.

Kimball B.A., K. Kobayashi, and M. Bindi, 2002: Responses of agricultural crops to free-air CO<sub>2</sub> enrichment. *Advances in Agronomy*, **77**, 293-368.

Kimball, B.A., R.L. LaMorte, P.J. Pinter Jr., G.W. Wall, D.J. Hunsaker, F.J. Adamsen, S.W. Leavitt, T.L. Thompson, A.D. Matthias, and T.J. Brooks, 1999: Free-air CO<sub>2</sub> enrichment and soil nitrogen effects on energy balance and evapotranspiration of wheat. *Water Resources Research*, **35**, 1179-1190.

Kim, H.Y., T. Horie, H. Nakagawa, and K. Wada, 1996: Effects of elevated CO<sub>2</sub> concentration and high temperature on growth and yield of rice. II. The effect of yield and its component of Akihikari rice. *Japanese Journal of Crop Science*, **65**, 644-651.

King, K.M. and D.H. Greer, 1986: Effects of carbon dioxide enrichment and soil water on maize. *Agronomy Journal*, **78**, 515-521.

- King, J.Y., A.R. Mosier, J.A. Morgan, D.R. LeCain, D.G. Milchunas, and W.J. Parton, 2004. Plant nitrogen dynamics in shortgrass steppe under elevated atmospheric carbon dioxide. *Ecosystems* 7:147-160.
- Kiniry, J. R., and R. Bonhomme, 1991: Predicting maize phenology, chapter 11, pp 115-131. *In: Hodges, T. (ed.) Predicting Crop Phenology*. CRC Press, Boca Raton.
- Knapp, P.A., P.T. Soulè, and H.D. Grissino-Mayer, 2001: Detecting potential regional effects of increased atmospheric CO<sub>2</sub> on growth rates of western juniper. *Global Change Biology*, **7**, 903-917.
- Knapp, A.K., J.M. Briggs, and J.K. Koelliker, 2001. Frequency and extent of water limitation to primary production in a mesic temperate grassland. *Ecosystems*, **4**, 19-28.
- Knapp, A.K., and M.D. Smith, 2001: Variation among biomes in temporal dynamics of aboveground primary production. *Science*, **291**, 481-484.
- Kobza, J. and G.E. Edwards, 1987: Influences of leaf temperature on photosynthetic carbon metabolism in wheat. *Plant Physiology*, **83**, 69-74.
- Krug, H., 1997: Environmental influences on development, growth and yield. *In: Wien, H.C. (ed.) The Physiology of Vegetable Crops*. CAB International. Wallingford, UK.
- Laing, D.R., P.G. Jones, and J.H. Davis, 1984: Common bean (*Phaseolus vulgaris* L.). pp. 305-351. *In P.R. Goldsworthy and N.M. Fisher (eds.) The Physiology of Tropical Field Crops*. John Wiley and Sons, New York.
- Lawlor, D.W., and R.A.C. Mitchell, 2000: Crop ecosystem responses to climatic change: Wheat. Chapter 4. pp. 57-80. *In K. R. Reddy and H. F. Hodges, Climate Change and Global Crop Productivity*. CAB International, New York, NY.
- Lawson, T., J. Craigon, C.R. Black, J.J. Colls, G. Landon, and J.D.B. Weyers, 2002: Impact of elevated CO<sub>2</sub> and O<sub>3</sub> on gas exchange parameters and epidermal characteristics in potato (*Solanum tuberosum* L.). *Journal of Experimental Botany*, **53**, 737-746.
- Leakey, A.D.B., M. Uribeharrea, E. A. Ainsworth, S.L. Naidu, A. Rogers, D.R. Ort, and S.P. Long, 2006: Photosynthesis, productivity, and yield of maize are not affected by open-air elevation of CO<sub>2</sub> concentration in the absence of drought. *Plant Physiology*, **140**, 779-790.
- Liebig, M.A., J.A. Morgan, J.D. Reeder, B.H. Ellert, H.T. Gollany, and G.S. Schuman, 2005: Greenhouse gas contributions and mitigation potential of agricultural practices in northwestern USA and western Canada. *Soil & Tillage Research*, **83**, 25-52.
- Lobell, D.B., and G.P. Asner, 2003: Climate and management contributions to recent trends in U.S. agricultural yields. *Science*, **299**, 1032.

Lobell, D.B., and C.B. Field, 2007: Global scale climate-crop yield relationships and the impact of recent warming. *Environmental Research Letters*, **2**, 1-7.

Long, S.P. 1991: Modification of the response of photosynthetic productivity to rising temperature by atmospheric CO<sub>2</sub> concentrations: has its importance been underestimated? *Plant, Cell & Environment*, **14**, 729-739.

Long, S.P., E.A. Ainsworth, A.D.B. Leakey, J. Nosberger, and D.R. Ort, 2006: Food for thought: lower-than-expected crop yield stimulation with rising CO<sub>2</sub> concentrations. *Science*, **213**, 1918-1921.

Luo, Y., D. Hui, and D. Zhang, 2006: Elevated CO<sub>2</sub> stimulate net accumulations of carbon and nitrogen in land ecosystems: a meta-analysis. *Ecology*, **87**, 53-63.

Luo, Y., B. Su, W.S. Currie, J.S. Dukes, A. Finzi, U. Hartwig, B. Hungate, R.E. McMurtrie, R. Oren, W.J. Parton, D.E. Pataki, M.R. Shaw, D.R. Zak, and C.B. Field, 2004: Progressive nitrogen limitation of ecosystem responses to rising atmospheric carbon dioxide. *BioScience*, **54**, 731-739.

Mader, T.L. 2003: Environmental stress in confined beef cattle. *Journal of Animal Science*, **81** (electronic suppl. 2), 110-119.

Mader, T.L., J.M. Dahlquist, and J.B. Gaughan. 1997a: Wind Protection effects and airflow patterns in outside feedlots. *Journal of Animal Science.*, **75**, 26-36.

Mader, T.L., J.M. Dahlquist, G.L. Hahn, and J.B. Gaughan, 1999a: Shade and wind barrier effects on summer-time feedlot cattle performance. *Journal of Animal Science*, **77**, 2065-2072.

Mader, T.L. and M.S. Davis, 2004: Effect of management strategies on reducing heat stress of feedlot cattle: feed and water intake. *Journal of Animal Science*, **82**, 3077-3087.

Mader, T.L., M.S. Davis, and T. Brown-Brandl, 2006: Environmental factors influencing heat stress in feedlot cattle. *Journal of Animal Science*, **84**, 712-719.

Mader, T.L., L.R. Fell, and M.J. McPhee, 1997b: Behavior response of non-Brahman cattle to shade in commercial feedlots. *Proceeding 6th International Livestock Environment Symposium*, American Society of Agricultural Engineers, St. Joseph, MI: 795-802.

Mader, T.L., J.M. Gaughan, and B. A. Young, 1999b: Feedlot diet roughage level of Hereford cattle exposed to excessive heat load. *Professional Animal Scientist*, **15**, 53-62.

Mader, T.L., S.M. Holt, G.L. Hahn, M.S. Davis and D.E. Spiers, 2002: Feeding strategies for managing heat load in feedlot cattle. *Journal of Animal Science*, **80**, 2373-2382.

Mader, T.L. and W.M. Kreikemeier, 2006: Effects of growth-promoting agents and season on blood metabolites and body temperature in heifers. *Journal of Animal Science*, **84**, 1030-1037.

- Magliulo, V., M. Bindi, and G. Rana, 2003: Water use of irrigated potato (*Solanum tuberosum* L.) grown under free air carbon dioxide enrichment in central Italy. *Agriculture, Ecosystems and Environment*, **97**, 65-80.
- Maroco, J.P., G.E. Edwards and M.S.B. Ku, 1999: Photosynthetic acclimation of maize to growth under elevated levels of carbon dioxide. *Planta*, **210**, 115-125.
- Maiti, R.K., 1996: Sorghum science. *Science Publishers, Inc.*, Lebanon, New Hampshire, USA.
- Matsui, T., O.S. Namuco, L.H. Ziska and T. Horie, 1997: Effects of high temperature and CO<sub>2</sub> concentration on spikelet sterility in *indica* rice. *Field Crops Research*, **51**, 213-219.
- Matsushima, S., T. Tanaka, and T. Hoshino, 1964: Analysis of yield determining process and its application to yield-prediction and culture improvement of lowland rice. LXX. Combined effect of air temperature and water temperature at different stages of growth on the grain yield and its components of lowland rice. *Proceedings of the Crop Science Society of Japan*, **33**, 53-58.
- Mauney, J.R., B.A. Kimball, P.J. Pinter, Jr., R.L. LaMorte, K.F. Lewin, J. Nagy, and G.R. Hendrey, 1994: Growth and yield of cotton in response to free-air carbon dioxide enrichment (FACE) environment. *Agricultural and Forest Meteorology*, **70**, 49-67.
- Medlyn, B.E., C.V.M. Barton, M.S.J. Broadmeadow, R. Ceulemans, P. De Angelis, M. Forstreuter, M. Freeman, S.B. Jackson, S. Kellomaki, E. Laitat, A. Rey, P. Roberntz, B.D. Sigurdsson, J. Strassmeyer, K. Wang, P.S. Curtis, and P.G. Jarvis, 2001: Stomatal conductance of forest species after long-term exposure to elevated CO<sub>2</sub> concentration: a synthesis. *New Phytologist*, **149**, 247-264.
- Meeting, F.B., J.L. Smith, J.S. Amthor, and R.C. Izaurrealde, 2001: Science needs and new technology for increasing soil carbon sequestration. *Climatic Change*, **51**, 11-34.
- Milchunas, D.G., A.R. Mosier, J.A. Morgan, D.R. LeCain, J.Y. King, and J.A. Nelson, 2005: Elevated CO<sub>2</sub> and defoliation effects on a shortgrass steppe: forage quality versus quantity for ruminants. *Agriculture, Ecosystems and Environment*, **111**, 166-184.
- Miller, J.E., A.S. Heagle, and W.A. Pursley, 1998: Influence of ozone stress on soybean response to carbon dioxide enrichment: II. Biomass and development. *Crop Science*, **38**, 122-128.
- Mills, G., G. Ball, F. Hayes, J. Fuhrer, L. Skarby, B. Gimeno, L. De Temmerman, and A. Heagle, 2000: Development of a multi-factor model for predicting the effects of ambient ozone on the biomass of white clover. *Environmental Pollution*, **109**, 533-542.
- Mitchell, M.A., P.J. Kettlewell, R.R. Hunter and A.J. Carlisle, 2001: Physiological stress response modeling – applications to the broiler transport thermal environment. *Proceedings 6th International Livestock Environment Symposium*, American Society of Agricultural Engineers, St Joseph, MI: 550-555.

Mitchell, R.A.C., V.J. Mitchell, S.P. Driscoll, J. Franklin, and D.W. Lawlor, 1993: Effects of increased CO<sub>2</sub> concentration and temperature on growth and yield of winter wheat at two levels of nitrogen application. *Plant Cell & Environment*, **16**, 521-529.

Montaigne, F., 2004: The heat is on: eco-signs. *National Geographic*, **206**, 34-55.

Moore, J.L., S.M. Howden, G.M. McKeon, J.O. Carter, and J.C. Scanlan, 2001: The dynamics of grazed woodlands in southwest Queensland, Australia, and their effect on greenhouse gas emissions. *Environmental International*, **27**, 147-153.

Morgan, J.A. 2005. Rising atmospheric CO<sub>2</sub> and global climate change: Management implications for grazing lands. pp. 245-272 in: S.G. Reynolds and J. Frame (eds) *Grasslands: Developments Opportunities Perspectives*. FAO and Science Pub. Inc.

Morgan, J.A., D.R. LeCain, A.R. Mosier, and D.G. Milchunas, 2001: Elevated CO<sub>2</sub> enhances water relations and productivity and affects gas exchange in C3 and C4 grasses of the Colorado shortgrass steppe. *Global Change Biology*, **7**, 451-466.

Morgan, J.A., D.G. Milchunas, D.R. LeCain, M.S. West and A. Mosier, 2007. Carbon dioxide enrichment alters plant community structure and accelerates shrub growth in the shortgrass steppe. *Proceedings of the National Academy of Sciences* **104**, 14724-14729.

Morgan, J.A., A.R. Mosier, D.G. Milchunas, D.R. LeCain, J.A. Nelson, and W.J. Parton, 2004a: CO<sub>2</sub> enhances productivity, alters species composition, and reduces digestibility of shortgrass steppe vegetation. *Ecological Application*, **14**, 208-219.

Morgan, J.A., D.E. Pataki, C. Körner, H. Clark, S.J. Del Grosso, J.M. Grünzweig, A.J., Knapp, A.R. Mosier, P.C.D. Newton, P.A. Niklaus, J.B. Nippert, R.S. Nowak, W.J. Parton, H.W. Polley, and M.R. Shaw, 2004b: Water relations in grassland and desert ecosystems exposed to elevated atmospheric CO<sub>2</sub>. *Oecologia*, **140**, 11-25.

Morgan, P.B., E.A. Ainsworth, and S.P. Long, 2003: How does elevated ozone impact soybean? A meta-analysis of photosynthesis, growth and yield. *Plant, Cell & Environment*, **26**, 1317-1328.

Morgan, P.B., C.J. Bernacchi, D.R. Ort, and S.P. Long, 2004: An in vivo analysis of the effect of season-long open-air elevation of ozone to anticipated 2050 levels on photosynthesis in soybean. *Plant Physiology*, **135**, 2348-2357.

Morgan, P.B., T.A. Mies, G.A. Bollero, R.L. Nelson, and S.P. Long, 2006: Season-long elevation of ozone concentration to projected 2050 levels under fully open-air conditions substantially decreases the growth and production of soybean. *New Phytologist*, **170**, 333-343.

Morison, J.I.L., 1987: Intercellular CO<sub>2</sub> concentration and stomatal response to CO<sub>2</sub>. p. 229-251. In E. Zeiger, G. D. Farquhar, and I. R. Cowan (eds.) *Stomatal Function*. Stanford Univ. Press, Stanford, CA.

- Moura, D.J., I.A. Naas, K.B. Sevegnani and M.E. Corria, 1997: The use of enthalpy as a thermal comfort index. *Proceedings 5th International Livestock Environment Symposium*, American Society of Agricultural Engineers, St. Joseph, MI: 577-583.
- Murphy, K.L., I.C. Burke, M.A. Vinton, W.K. Lauenroth, M.R. Aguiar, D.A. Wedin, R.A. Virginia, and P.N. Lowe, 2002: Regional analysis of litter quality in the central grassland region of North America. *Journal of Vegetation Science*, **13**, 395-402.
- Muchow, R. C., T. R. Sinclair, and J. M. Bennett, 1990: Temperature and solar-radiation effects on potential maize yield across locations. *Agronomy Journal*, **82**, 338-343.
- Nakagawa, H., T. Horie, and H.Y. Kim, 1994: Environmental factors affecting rice responses to elevated carbon dioxide concentrations. *International Rice Research Notes*, **19**, 45-46.
- Nelson, J.A., J.A. Morgan, D.R. LeCain, A.R. Mosier, D.G. Milchunas and W.J. Parton, 2004: Elevated CO<sub>2</sub> increases soil moisture and enhances plant water relations in a long-term field study in the semi-arid shortgrass steppe of Northern Colorado. *Plant and Soil*, **259**, 169-179.
- Neilson, R.P., 1986. High-resolution climatic analysis and southwest biogeography. *Science*, **232**, 27-34
- Newman, J.A., M.L. Abner, R.G. Dado, D.J. Gibson, A. Brookings, and A.J. Parsons, 2003: Effects of elevated CO<sub>2</sub>, nitrogen and fungal endophyte-infection on tall fescue: growth, photosynthesis, chemical composition and digestibility. *Global Change Biology*, **9**, 425-437.
- Newman, Y.C., L.E. Sollenberger, K.J. Boote, L.H. Allen, Jr., J.M. Thomas, and R.C. Littell, 2006: Nitrogen fertilization affects bahiagrass response to elevated atmospheric carbon dioxide. *Agronomy Journal*, **98**, 382-387.
- Newman, Y.C., L.E. Sollenberger, K.J. Boote, L.H. Allen, Jr., and R.C. Littell, 2001: Carbon dioxide and temperature effects on forage dry matter production. *Crop Science*, **41**, 399-406.
- Newton, P.C.D., H. Clark, C.C. Bell, and E.M. Glasgow, 1996: Interaction of soil moisture and CO<sub>2</sub> on the above-ground growth rate, root length density, and gas exchange of turves from temperature pastures. *Journal of Experimental Botany*, **47**, 771-779.
- Niklaus, P.A., J. Alpehi, D. Ebersberger, C. Kampichlers, E. Kandeler, and D. Tscherko, 2003: Six years of in situ CO<sub>2</sub> enrichment evoke changes in soil structure and soil biota of nutrient-poor grassland. *Global Change Biology*, **9**, 585-600.
- Noormets, A., A. Sôber, E.J. Pell, R.E. Dickson, G.K. Podila, J. Sôber, J.G. Isebrands, and D.F. Karnosky, 2001: Stomatal and non-stomatal limitation to photosynthesis in two trembling aspen (*Populus tremuloides* Michx.) clones exposed to elevated CO<sub>2</sub> and/or O<sub>3</sub>. *Plant, Cell, and Environment*, **24**, 327-336.
- Norby, R.J., M.F. Cortufo, P. Ineson, E.G. O'Neill, and J.G. Canadell, 2001: Elevated CO<sub>2</sub>, litter chemistry, and decomposition: a synthesis. *Oecologia*, **127**, 153-165.

NRC, 1981: Effect of environment on nutrient requirements of domestic animals. National Research Council, National Academy Press, Washington, D.C.

NRC, 1987: Predicting Feed Intake of Food-Producing Animals. National Academy Press, Washington, D.C.

NRCS [Natural Resources Conservation Service], 2003: *National Range and Pasture Handbook*. USDA-NRCS, Grazing Lands Technology Institute. Washington, DC.

Oberhuber, W., and G.E. Edwards, 1993: Temperature dependence of the linkage of quantum yield of photosystem II to CO<sub>2</sub> fixation in C4 and C3 plants. *Plant Physiology*, **101**, 507-512.

Ong, C.K. 1986: Agroclimatological factors affecting phenology of groundnut. Pages 115-125 In: *Agrometeorology of Groundnut: Proceedings of an International Symposium*, 21-26 Aug. 1985, ICRISAT Sahelian Center, Niamey, Niger. ICRISAT, Patancheru, A.P. 502 324, India.

Ottman, M.J., B.A. Kimball, P.J. Pinter, G.W. Wall, R.L. Vanderlip, S.W. Leavitt, R.L. LaMorte, A.D. Matthias, and T.J. Brooks, 2001: Elevated CO<sub>2</sub> increases sorghum biomass under drought conditions. *New Phytologist*, **15**, 261-273.

Owensby, C.E., P.I. Coyne, and L.M. Auen, 1993: Nitrogen and phosphorus dynamics of a tallgrass prairie ecosystem exposed to elevated carbon dioxide. *Plant, Cell & Environment*, **16**, 843-850.

Owensby, C.E., R.C. Cochran, and L.M. Auen, 1996: Effects of elevated carbon dioxide on forage quality for ruminants. In: Körner, Ch. and F.A. Bazzaz (eds.) *Carbon Dioxide, Populations and Communities*. Academic Press, San Diego, pp. 363-371.

Owensby, C.E., J.M. Ham, A.K. Knapp, and L.M. Auen, 1999: Biomass production and species composition change in a tallgrass prairie ecosystem after long-term exposure to elevated atmospheric CO<sub>2</sub>. *Global Change Biology*, **5**, 497-506.

Pan, D., 1996: Soybean responses to elevated temperature and doubled CO<sub>2</sub>. Ph.D. dissertation. University of Florida, Gainesville, Florida, USA. 227 p.

Pareulo, J.M., and W.K. Lauenroth, 1996: Relative abundance of plant functional types in grasslands and shrublands of North America. *Ecological Applications*, **6**, 1212-1224.

Parton, W.J., J.A. Morgan, G.Wang, and S. DelGrosso. 2007a: Projected ecosystem impact of the prairie heating and CO<sub>2</sub> enrichment experiment. *New Phytologist* 174, 823-834.

Parton, W., W.L. Silver, I.C. Burke, L. Grassens, M.E. Harmon, W.S. Currie, J.Y. King, E.C. Adair, L.A. Brandt, S.C. Hart, and B. Fasth, 2007b: Global-scale similarities in nitrogen release patterns during long-term decomposition. *Science*, **315**, 361-364.

- Parton, W.J., D.S. Schimel, C.V. Cole, and D.S. Ojima, 1987: Analysis of factors controlling soil organic matter levels in Great Plains grasslands. *Soil Science Society of America Journal*, **51**, 1173-1179.
- Patterson, D.T., J.K. Westbrook, R.J.C. Joyce, P.D. Lingren, and J. Rogasik, 1999: Weeds, insects and diseases. *Climatic Change*, **43**, 711-727.
- Paulsen, G.M., 1994: High temperature responses of crop plants. In: K.J. Boote, J.M. Bennett, T.R. Sinclair, and G.M. Paulsen (eds.) *Physiology and Determination of Crop Yield*. ASA-CSSA-SSSA, Madison, WI. Pp. 365-389.
- Peat, M.M., S. Sato, and R.G. Gardner, 1998: Comparing heat stress effects on male-fertile and male-sterile tomatoes. *Plant, Cell & Environment*, **21**, 225-231.
- Peet, M.M., and D.W. Wolfe, 2000: Crop ecosystem responses to climate change- vegetable crops. In: Reddy K.R., Hodges H.F. (eds) *Climate Change and Global Crop Productivity*. CABI Publishing. New York.
- Peng, S., J. Huang, J.E. Sheehy, R.C. Lanza, R.M. Visperas, X. Zhong, G.S. Centeno, G.S. Khush, and K.G. Cassman, 2004: Rice yields decline with higher night temperatures from global warming. *Proceedings of the National Academy of Sciences of the United States of America*, <http://www.pnas.org/cgi/content/full/101/27/9971>, 10 pp.
- Peñuelas, J., and M. Estiarte, 1997: Trends in plant carbon concentration and plant demand for N throughout the century. *Oecologia*, **109**, 69-73.
- Pepper, D.A., S. Del Grosso, R.E. McMurtrie, and W.J. Parton, 2005: Simulated carbon sink response of shortgrass steppe, tallgrass prairie and forest ecosystems to rising [CO<sub>2</sub>], temperature and nitrogen input. *Global Biogeochemical Cycles*, **19**, GB 1004. pp. 20.
- Peters, D.P.C., B.T. Bestelmeyer, J.E. Herrick, E.L. Fredrickson, H.C. Monger, and K.M. Havstad, 2006. Disentangling complex landscapes: New insights into arid and semiarid system dynamics. *BioScience* **56**, 491-501.
- Pettigrew, W.T., 2008. The effect of higher temperature on cotton lint yield production and fiber quality. *Crop Science*, **48**, 278-285.
- Phillips, R.L., O. Beerli, and M. Liebbig, 2006. Landscape estimation of canopy C:N ratios under variable drought stress in Northern Great Plains rangelands. *Journal of Geophysical Research*. 111: doi:10.1029/2005JG000135.
- Pickering, N.B., J.W. Jones, and K.J. Boote, 1995: Adapting SOYGRO V5.42 for prediction under climate change conditions. In: C. Rosenzweig, J.W. Jones, and L.H. Allen, Jr. (eds.). *Climate Change and Agriculture: Analysis of Potential International Impacts*, ASA Spec. Pub. No. 59, ASA-CSSA-SSSA, Madison, WI. pp. 77-98.

Piper, E.L., K.J. Boote, and J.W. Jones, 1998: Evaluation and improvement of crop models using regional cultivar trial data. *Applied Engineering in Agriculture*, **14**, 435-446.

Polley, H.W., 1997: Implications of rising atmospheric carbon dioxide for rangelands. *Journal of Range Management*, **50**, 561-577.

Polley, H.W., W.A. Dugas, P.C. Mielnick, and H.B., Johnson, 2007: C3-C4 composition and prior carbon dioxide treatment regulate the response of grassland carbon and water fluxes to carbon dioxide. *Functional Ecology*, **21**, 11-18.

Polley, H.W., H.B. Johnson, and J.D. Derner, 2003: Increasing CO<sub>2</sub> from subambient to superambient concentrations alters species composition and decreases above-ground biomass in a C3/C4 grassland. *New Phytologist*, **160**, 319-327.

Polley, H.W., H.B. Johnson, and C.R. Tischler, 2002. Woody invasion of grasslands: evidence that CO<sub>2</sub> enrichment indirectly promotes establishment of *Prosopis glandulosa*. *Plant Ecology*, **164**, 85-94.

Polley, H.W., J.A. Morgan, B.D. Campbell, M. Stafford Smith, 2000: Crop ecosystem responses to climatic change: rangelands. In: Reddy, K.R., and H.F. Hodges (eds.) *Climate change and global crop productivity*. CABI, Wallingford, Oxon, UK, pp. 293-314.

Prasad, P.V.V., K.J. Boote, and L.H. Allen, Jr., 2006a: Adverse high temperature effects on pollen viability, seed-set, seed yield and harvest index of grain-sorghum [*Sorghum bicolor* (L.) Moench] are more severe at elevated carbon dioxide due to high tissue temperature. *Agricultural and Forest Meteorology*, **139**, 237-251.

Prasad, P.V.V., K.J. Boote, L.H. Allen, Jr., J.E. Sheehy, and J.M.G. Thomas, 2006b: Species, ecotype and cultivar differences in spikelet fertility and harvest index of rice in response to high temperature stress. *Field Crops Research*, **95**, 398-411.

Prasad, P.V.V., K.J. Boote, L.H. Allen, Jr., and J.M.G. Thomas, 2002: Effects of elevated temperature and carbon dioxide on seed-set and yield of kidney bean (*Phaseolus vulgaris* L.). *Global Change Biol*, **8**, 710-721.

Prasad, P. V. V., K. J. Boote, L. H. Allen, Jr., and J. M. G. Thomas, 2003: Supra-optimal temperatures are detrimental to peanut (*Arachis hypogaea* L) reproductive processes and yield at ambient and elevated carbon dioxide. *Global Change Biology*, **9**, 1775-1787.

Prasad, P.V.V., P.Q. Craufurd, V.G. Kakani, T.R. Wheeler, and K.J. Boote, 2001: Influence of high temperature during pre- and post-anthesis stages of floral development on fruit-set and pollen germination in peanut. *Australian Journal of Plant Physiology*, **28**, 233-240.

Rae, A.M., R. Ferris, M.J. Tallis, and G. Taylor, 2006: Elucidating genomic regions determining enhanced leaf growth and delayed senescence in elevated CO<sub>2</sub>. *Plant, Cell & Environment*, **29**, 1730-1741.

- Read, J.J., J.A. Morgan, N.J. Chatterton, and P.A. Harrison, 1997: Gas exchange and carbohydrate and nitrogen concentrations in leaves of *Pascopyrum smithii* (C3) and *Bouteloua gracilis* (C4) at different carbon dioxide concentrations and temperatures. *Ann. Bot.*, **79**, 197-206
- Reddy, K.R., G.H. Davidonis, A.S. Johnson, and B.T. Vinyard, 1999: Temperature regime and carbon dioxide enrichment alter cotton boll development and fiber properties. *Agronomy Journal* **91**, 851-858.
- Reddy, K.R., H.F. Hodges, and B.A. Kimball, 2000: Crop ecosystem responses to climatic change: Cotton. Chapter 8. pp. 161-187. *In*: K. R. Reddy and H. F. Hodges, *Climate Change and Global Crop Productivity*. CAB International, New York, NY.
- Reddy, K.R., H.F. Hodges, and J.M. McKinion, 1995: Carbon dioxide and temperature effects on Pima cotton growth. *Agriculture, Ecosystems & Environment*, **54**, 17-29.
- Reddy, K.R., H.F. Hodges, and J.M. McKinion, 1997: A comparison of scenarios for the effect of global climate change on cotton growth and yield. *Australian Journal of Plant Physiology*, **24**, 707-713.
- Reddy, K.R., H.F. Hodges, J.M. McKinion, and G.W. Wall, 1992a: Temperature effects on Pima cotton growth and development. *Agronomy Journal*, **84**, 237-243.
- Reddy, K.R., H.F. Hodges, and V.R. Reddy, 1992b: Temperature effects on cotton fruit retention. *Agronomy Journal*, **84**, 26-30.
- Reddy, K.R., P.V.V. Prasad, and V.G. Kakani, 2005: Crop responses to elevated carbon dioxide and interactions with temperature: *Cotton. J. of Crop Improvement*, **13**, 157-191.
- Reddy, V.R., K.R. Reddy, and H.F. Hodges, 1995: Carbon dioxide enrichment and temperature effects on cotton canopy photosynthesis, transpiration, and water use efficiency. *Field Crops Research*, **41**, 13-23.
- Reich, P.B., S.E. Hobbie, T. Lee, D.S. Ellsworth, J.B. West, D. Tilman, J.M.H. Knops, S. Naeem, and J. Trost, 2006a: Nitrogen limitation constrains sustainability of ecosystem response to CO<sub>2</sub>. *Nature*, **440**, 922-924.
- Reich, P.B., B.A. Hungate, and Y. Luo, 2006b: Carbon-nitrogen interactions in terrestrial ecosystems in response to rising atmospheric carbon dioxide. *Annual Review of Ecological System*, **37**, 611-636.
- Ritchie, J.T. 1972: Model for predicting evaporation from a row crop with incomplete cover. *Water Resources Research*, **8**, 1204-1213.
- Rubatzky, V.E., M. Yamaguchi. 1997. *World Vegetables*. 2<sup>nd</sup> Edition. Chapman and Hall. New York. Chapter 6, pp. 59-65.

- Rudorff, B.F.T., C.L. Mulchi, C.S.T. Daughtry, and E.H. Lee, 1996: Growth, radiation use efficiency, and canopy reflectance of wheat and corn grown under elevated ozone and carbon dioxide atmospheres. *Remote Sensing of the Environment*, **55**, 163-173.
- Runge, E. C. A. 1968: Effect of rainfall and temperature interactions during the growing season on corn yield. *Agronomy Journal*, **60**, 503-507.
- Russelle, M.P., M.H. Entz, and A.J. Franzluebbers, 2007: Reconsidering integrated crop-livestock systems in North America. *Agronomy Journal*, **99**, 325-334.
- Rustad, L.E., J.L. Campbell, G.M. Marion, R.J. Norby, M.J. Mitchell, A.E. Hartley, J.H.C. Cornelissen, and J. Gurevitch, 2001: A meta-analysis of the response of soil respiration, net nitrogen mineralization, and aboveground plant growth to experimental ecosystem warming. *Oecologia*, **126**, 543-562.
- Salem, M.A., V.G. Kakani, S. Koti, and K.R. Reddy, 2007: Pollen-based screening of soybean genotypes for high temperature, *Crop Science*, **47**, 219-231.
- Samson, F. and F. Knopf, 1994. Prairie conservation in North America. *BioScience*, **44**, 418-421.
- Sasek, T.W., and B.R. Strain, 1990: Implications of atmospheric CO<sub>2</sub> enrichment and climatic change for the geographical distribution of two introduced vines in the USA. *Climatic Change*, **16**, 31-51.
- Satake, T, and S. Yoshida, 1978: High temperature-induced sterility in *indica* rice at flowering. *Japanese Journal of Crop Science*, **47**, 6-17.
- Sato, S., M.M. Peet, and J.F. Thomas, 2000: Physiological factors limit fruit set of tomato (*Lycopersicon esculentum* Mill.) under chronic high temperature stress. *Plant, Cell & Environment*, **23**, 719-726.
- Sau, F., K.J. Boote, W.M. Bostick, J.W. Jones, and M.I. Minguez, 2004: Testing and improving evapotranspiration and soil water balance of the DSSAT crop models. *Agronomy Journal*, **96**, 1243-1257.
- Schlesinger, W.H. 2006: Carbon trading. *Science*, **314**, 1217.
- Schooper, J.B., R.J. Lambert, B.L. Vasilas, and M.E. Westgate, 1987: Plant factors controlling seed set in maize. *Plant Physiology*, **83**, 121-125.
- Schuman, G.E., J.E. Herrick, and H.H. Janzen, 2001: The dynamics of soil carbon in rangelands. pp. 267-290, *In*: R.F. Follett, J.M. Kimble and R. Lal (eds). *The Potential of U.S. Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect*. Boca Raton, FL: Lewis Publishers.

- Semmartin, M., M.R. Aguiar, R.A. Distel, A.S. Moretto, and C.M. Ghera, 2004: Litter quality and nutrient cycling affected by grazing-induced species replacements along a precipitation gradient. *Oikos: A Journal of Ecology*, **107**, 148-160.
- Sexton, P.J., J.W. White, and K.J. Boote, 1994: Yield-determining processes in relation to cultivar seed size of common bean. *Crop Science*, **34**, 84-91.
- Schaeffer, S.M., S.A. Billings, and R.D. Evans, 2007: Laboratory incubations reveal potential responses of soil nitrogen cycling to changes in soil C and N availability in Mojave Desert soils exposed to elevated atmospheric CO<sub>2</sub>. *Global Change Biology*, **13**, 854-865.
- Shaw, M.R., E.S. Zavaleta, N.R. Chiariello, E.E. Cleland, H.A. Mooney, and C.B. Field, 2002: Grassland responses to global environmental changes suppressed by elevated CO<sub>2</sub>. *Science*, **298**, 1987-1990.
- Sherry, R.A., X. Zhou, S. Gu, J.A. Arnone III, D.S. Schimel, P.S. Verburg, L.L. Wallace, and Y. Luo, 2007: Divergence of reproductive phenology under climate warming. *Proceedings of the National Academy of Sciences*, **104**, 198-202.
- Six, J., R.T. Conant, E.A. Paul, and K. Paustian, 2002: Stabilization mechanisms of soil organic matter: Implications for C-saturation of soils. *Plant Soil*, **241**, 155-176.
- Smith, S.D., T.E. Huxman, S.F. Zitzer, T.N. Charlet, D.C. Housman, J.S. Coleman, L.K. Fenstermaker, J.R. Seemann, and R.S. Nowak, 2000: Elevated CO<sub>2</sub> increases productivity and invasive species success in an arid ecosystem. *Nature*, **408**, 79-82.
- Snyder, A.M. 2000: The effects of elevated carbon dioxide and temperature on two cultivars of rice. Master's Thesis, University of Florida, Gainesville, Florida, USA. 167 pp.
- Sofield, I., L.T. Evans, M.G. Cook, and I.F. Wardlaw, 1977: Factors influencing the rate and duration of grain filling in wheat. *Australian Journal of Plant Physiology*, **4**, 785-797.
- Sofield, I., L.T. Evans, and I.F. Wardlaw, 1974: The effects of temperature and light on grain filling in wheat. P. 909-915. In R. L. Bieleski et al. (eds.) *Mechanisms of Regulation of Plant Growth*. Bull. 12. R. Soc. N.Z., Wellington, N.Z.
- Sonnemann, I., V. Wolters. 2005. The microfood web of grassland soils respond to a moderate increase in atmospheric CO<sub>2</sub>. *Global Change Biology* 11: 1148-1155.
- Sprott, L.R., G.E. Selk, and D.C. Adams, 2001: Review: Factors affecting decisions on when to calve beef females. *Professional Animal Scientist*, **17**, 238-246.
- Stockle, C.O., P.T. Dyke, J.R. Williams, C.A. Jones, and N.J. Rosenberg, 1992a: A method for estimating the direct and climatic effects of rising atmospheric carbon dioxide on growth and yield of crops: Part II – Sensitivity analysis at three sites in the Midwestern USA. *Agricultural Systems*, **38**, 239-256.

Stockle, C.O., J.R. Williams, N.J. Rosenberg, and C.A. Jones, 1992b: A method for estimating the direct and climatic effects of rising atmospheric carbon dioxide on growth and yield of crops: Part 1 – Modification of the EPIC model for climate change analysis. *Agricultural Systems*, **38**, 225-238.

Stephenson, N.L. 1990: Climatic control of vegetation distribution: the role of the water balance. *American Naturalist*, **135**, 649-670.

Stivers, L., 1999: Crop Profiles for Corn (Sweet) in New York.  
<http://pestdata.ncsu.edu/cropprofiles/docs/nycorn-sweet.html>

Sustainable Rangeland Roundtable Members (2006) Progress Report  
<http://sustainablelandscapes.warnercnr.colostate.edu/Images/ProgressReport.pdf>

Suter, D., J. Nösberger, and A. Lüscher, 2001: Response of perennial ryegrass to Free-Air CO<sub>2</sub> Enrichment (FACE) is related to the dynamics of sward structure during regrowth. *Crop Science*, **41**, 810-817.

Svejcar, T.J., J. Bates, R.F. Angell, and R. Miller, 2003: The influence of precipitation timing on the sagebrush steppe ecosystem. In: Weltzin JF, McPherson GR (eds) *Changing Precipitation Regimes and Terrestrial Ecosystems*, University of Arizona Press, Tucson, pp. 90-106.

Tashiro, T., and I.F. Wardlaw, 1990: The response to high temperature shock and humidity changes prior to and during the early stages of grain development in wheat. *Australian Journal of Plant Physiology*, **17**, 551-561.

Temple, P.J. 1990: Growth form and yield responses of 4 cotton cultivars to ozone. *Agronomy Journal*, **82**, 1045-1050.

Terri, J.A., and L.G. Stowe. 1976. Climatic patterns and the distribution of C4 grasses in North America. *Oecologia* 23:1-12.

Thomas, J.M.G., 2001: Impact of elevated temperature and carbon dioxide on development and composition of soybean seed. Ph.D. Dissertation. University of Florida. Gainesville, Florida, USA. 185 pp.

Thomson A.M., R.A. Brown, N.J. Rosenberg, R.C. Izaurralde, and V.W. Benson, 2005: Climate change impacts for the conterminous USA: An integrated assessment Part 3. Dryland production of grain and forage crops. *Climatic Change*, **69**, 43-65.

Thornley, J.H.M., and M.G.R. Cannell, 1997: Temperate grassland responses to climate change: an analysis using the Hurley Pasture Model. *Annals of Botany*, **80**, 205-221.

Thornley, J.H.M., and M.G.R. Cannell, 2000: Dynamics of mineral N availability in grassland ecosystems under increased [CO<sub>2</sub>]: hypotheses evaluated using the Hurley Pasture model. *Plant Soil*, **224**, 153-170.

- Tingey, D.T., K.D. Rodecap, E.H. Lee, W.E. Hogsett, and J.W. Gregg, 2002: Pod development increases the ozone sensitivity of *Phaseolus vulgaris*. *Water Air and Soil Pollution*, **139**, 325-341.
- Tommasi, P.D., V. Magliulo, R. Dell'Aquila, F. Miglietta, A. Zaldei, and G. Gaylor, 2002: Water consumption of a CO<sub>2</sub> enriched poplar stand. *Atti del Convegno CNR-ISAFOM*, Ercolano, Italy.
- Triggs, J.M., B.A. Kimball, P.J. Pinter Jr, G.W. Wall, M.M. Conley, T.J. Brooks, R.L. LaMorte, N.R. Adam, M.J. Ottman, A.D. Matthias, S.W. Leavitt, and R.S. Cervený, 2004: Free-air carbon dioxide enrichment (FACE) effects on energy balance and evapotranspiration of sorghum. *Agricultural and Forest Meteorology*, **124**, 63-79.
- Tubiello, F.N., J.S. Amthor, K.J. Boote, M. Donatelli, W. Easterling, G. Fischer, R.M. Gifford, M. Howden, J. Reilly, and C. Rosenzweig, 2007: Crop response to elevated CO<sub>2</sub> and world food supply: A comment on "Food for Thought..." by Long et al., *Science* 312:1918-1921, 2006. *European J. Agronomy*, **26**, 215-223.
- Van Groenigen, K.J., J. Six, B.A. Hungate, M.A. Graaff, N. van Breemen, and C. van Kessel, 2006: Element interactions limit soil carbon storage. *Proceedings of the National Academy Of Sciences*, **103**, 6571-6574.
- Van Kooten, G.C. 2006: Economic of forest and agricultural carbon sinks. Chapter 19 In: Bhatti, J.S., R. Lal, M.J. Apps, and M.A. Price (eds), *Climate Change and Managed Ecosystems*, 375-395, Taylor & Francis Group, New York.
- Villalobos, F.J. and E. Fereres, 1990: Evaporation measurements beneath corn, cotton, and sunflower canopies. *Agronomy Journal*, **82**, 1153-1159.
- Vu, J.C.V., J.T. Baker, A.H. Pennanen, L.H. Allen, Jr., G. Bowes, and K.J. Boote, 1998: Elevated CO<sub>2</sub> and water deficit effects on photosynthesis, ribulose biphosphate carboxylase-oxygenase, and carbohydrate metabolism in rice. *Physiologia Plantarum*, **103**, 327-339.
- Wall, G.W., T.J. Brooks, R. Adam, A.B. Cousins, B.A. Kimball, P.J. Pinter, R.L. LaMorte, L. Trigs, M.J. Ottman, S.W. Leavitt, A.D. Matthias, D.G. Williams, and A.N. Webber, 2001: Elevated atmospheric CO<sub>2</sub> improved sorghum plant water status by ameliorating the adverse effects of drought. *New Phytologist*, **152**, 231-248.
- Wall, G.W., R.L. Garcia, B.A. Kimball, D.J. Hunsaker, P.J. Pinter, Jr., S.P. Long, C.P. Osborne, D.L. Hendrix, F. Wechsung, G. Wechsung, S.W. Leavitt, R.L. LaMorte, and S.B. Idso, 2006: Interactive effects of elevated carbon dioxide and drought on wheat. *Agronomy Journal*, **98**, 354-381.
- Walther G.R., E. Post, P. Convey, A. Menzel, C. Parmesan, T. Beaber, J.M. Fromenline, O. Hoegh-Goldberg, F. Baukin. 2002. Ecological responses to recent climate change. *Nature*, **416**:389-395.

- Wan, S., D. Hui, L. Wallace, and Y. Luo, 2005: Direct and indirect effects of experimental warming on ecosystem carbon processes in a tallgrass prairie. *Global Biogeochemical Cycles*, **19**, 2014, doi:10.1029/2004GB002315.
- Wand, S.J.E., G.F. Midgley, M.H. Jones, and P.S. Curtis., 1999: Responses of wild C4 and C3 grasses (Poaceae) species to elevated atmospheric CO<sub>2</sub> concentration: a meta-analytic test of current theories and perceptions. *Global Change Biology*, **5**, 723-741.
- Wardle, D.A., R.D. Bardgett, J.N. Klironomos, H. Setälä, W.H. van der Putten, and D.H. Wall., 2004: Ecological linkages between aboveground and belowground biota. *Science*, **304**, 1629-1633.
- Weatherly H.E., S.F. Zitzer, J.S. Coleman, and J.A. Arnone III, 2003: In situ litter decomposition and litter quality in a Mojave Desert ecosystem: effects of elevated atmospheric CO<sub>2</sub> and interannual climate variability. *Global Change Biology*, **9**, 1223-1233.
- Weber K.T., 2006: Challenges of integrating geospatial technologies into rangeland research and management. *Rangeland Ecology & Management*, **59**, 38-43.
- Weltzin J.F., and G.R. McPherson, 1997: Spatial and temporal soil moisture resource partitioning by trees and grasses in a temperate savanna, Arizona, USA. *Oecologia*, **112**, 156-164.
- Weltzin, J.F., and G.R. McPherson, 2003: Response of southwestern oak savannas to potential future precipitation regimes. In: Weltzin JF, McPherson GR (eds) *Changing Precipitation Regimes and Terrestrial Ecosystems*, University of Arizona Press, Tucson, pp. 127-146.
- Westwood, M.N., 1993: *Temperate Zone Pomology*. Timber Press. Portland, OR.
- Whitney, S., J. Whalen, M. VanGessel, B. Mulrooney, 2000: Crop profiles for corn (sweet) in Delaware. <http://www.impcenters.org/CropProfiles/docs/DEcorn-sweet.html>
- Williams, J.H., J.H.H. Wilson, and G.C. Bate, 1975: The growth of groundnuts (*Arachis hypogaea* L. cv. Makulu Red) at three altitudes in Rhodesia. *Rhodesian Journal of Agricultural Resources*, **13**, 33-43.
- Williams, J.R., 1995: The EPIC model, 1995. In: Singh, V.P. (Ed.), *Computer Models of Watershed Hydrology*. Water Resources Publications. Highlands Ranch, CO, pp. 909-1000.
- Wilsey, B.J., 1996: Urea additions and defoliation affect plant responses to elevated CO<sub>2</sub> in a C3 grass from Yellowstone National Park. *Oecologia*, **108**, 321-327.
- Wilsey, B.J., 2001: Effects of elevated CO<sub>2</sub> on the response of *Phleum pratense* and *Poa pratensis* to aboveground defoliation and root-feeding nematodes. *International Journal of Plant Science*, **162**, 1275-1282.

- Wolfe, D.W., 1994: Physiological and growth responses to atmospheric CO<sub>2</sub> concentration. *In*: Pessarakli M (ed) *Handbook of Plant and Crop Physiology*. Marcel Dekker. New York.
- Wolfe, D.W., M.D. Schwartz, A.N. Lakso, Y. Otsuki, R.M. Pool, and N.J. Shaulis, 2005: Climate change and shifts in spring phenology of three horticultural woody perennials in northeastern USA. *International Journal of Biometeorology*, **49**, 303-309.
- Wullschleger, S.D., and R.J. Norby, 2001: Sap velocity and canopy transpiration in a sweetgum stand exposed to free-air CO<sub>2</sub> enrichment (FACE). *New Phytologist*, **150**, 489-498.
- Yoshimoto, M., H. Oue, and K. Kobayashi, 2005: Responses of energy balance, evapotranspiration, and water use efficiency of canopies to free-air CO<sub>2</sub> enrichment. *Agricultural and Forest Meteorology*, **133**, 226-246.
- Young, J.A., 1991: Cheatgrass. *In*: James, L.F., J.O. Evans, M.H. Ralphs, and R.D. Child, (eds.) *Noxious Range Weeds*. Westview Press, Boulder, pp. 408-418.
- Zavaleta, E.S., M.R. Shaw, N.R. Chiariello, B.D. Thomas, E.E. Cleland, C.B. Field, and H.A. Mooney, 2003a: Grassland responses to three years of elevated temperature, CO<sub>2</sub>, precipitation, and N deposition. *Ecological Monographs*, **73**, 585-604.
- Zavaleta, E.S., B.D. Thomas, N.R. Chiariello, G.P. Asner, M.R. Shaw, and C.B. Field, 2003b: Plants reverse warming effect on ecosystem water balance. *Proceedings National Academy of Sciences, USA*, **100**, 9892-9893.
- Ziska, L.H. 2003: Evaluation of the growth response of six invasive species to past, present and future carbon dioxide concentrations. *Journal of Experimental Botany*, **54**, 395-404.
- Ziska, L.H. and J.A. Bunce, 1997: Influence of increasing carbon dioxide concentration on the photosynthetic and growth stimulation of selected C4 crops and weeds. *Photosynthesis Research*, **54**, 199-208.
- Ziska, L.H., and K. George, 2004: Rising carbon dioxide and invasive, noxious plants: potential threats and consequences. *World Resource Rev*, **16**, 427-447.
- Ziska, L.H., J.B. Reeves, and B. Blank, 2005: The impact of recent increases in atmospheric CO<sub>2</sub> on biomass production and vegetative retention of Cheatgrass (*Bromus tectorum*): implications for fire disturbance. *Global Change Biology*, **11**, 1325-1332.
- Ziska, L.H., G.B. Runion. 2006. Future weed, pest and disease problems for plants. *In*: Newton P., A. Carman, G. Edwards, P. Niklaus (eds.) *Agroecosystems in a Changing Climate*. CRC. New York. Chapter 11, pp. 262-287.
- Ziska, L.H., J.R. Teasdale, and J.A. Bunce, 1999: Future atmospheric carbon dioxide may increase tolerance to glyphosate. *Weed Sci*, **47**, 608-615.

Ziska, L.H., W. Weerakoon, O.S. Namuco, and R. Pamplona, 1996: The influence of nitrogen on the elevated CO<sub>2</sub> response in field-grown rice. *Australian Journal of Plant Physiology*, **23**, 45-52.

### 3. Land Resources

Aber, J., W. McDowell, K. Nadelhoffer, A. Magill, G. Berntson, M. Kamakea, S. McNulty, W. Currie, L. Rustad, and I. Fernandez, 1998. Nitrogen saturation in temperate forest ecosystems – Hypotheses revisited. *BioScience*, **48**, 921-934.

Abrahams, A.D., A.J. Parsons, and S.H. Luk, 1988. Hydrologic and sediment responses to simulated rainfall on desert hill slopes in southern Arizona. *Catena*, **15**, 103-117.

Adams, A.B., R.B. Harrison, R.S. Sletten, B.D. Strahm, E.C. Turnblom, and C.M. Jensen, 2005. Nitrogen-fertilization impacts on carbon sequestration and flux in managed coastal Douglas-fir stands of the Pacific Northwest. *Forest Ecology and Management*, **220**, 313-325.

Albaugh, T.J., H.L. Allen, P.M. Dougherty, L.W. Kress, and J.S. King, 1998. Leaf area and above- and belowground growth responses of loblolly pine to nutrient and water additions. *Forest Science*, **44**, 317-328.

Amiro, B.D., J.B. Todd, B.M. Wotton, K.A. Logan, M.D. Flannigan, B.J. Stocks, J.A. Mason, D.L. Martell, and K.G. Hirsch, 2001. Direct carbon emissions from Canadian forest fires, 1959-1999. *Canadian Journal of Forest Research* **31**, 512-525.

Amthor, J.S., 2000. The McCree-de Wit-Penning de Vries-Thornley respiration paradigms: 30 years later. *Annals of Botany*, **86**, 1-20.

Anderson, J., and R.S. Inouye, 2001. Landscape-scale changes in plant species abundance and biodiversity of a sagebrush steppe over 45 years. *Ecological Monographs*, **71**, 531-556.

Archer, S., 1994. Woody plant encroachment into southwestern grasslands and savannas: rates, patterns and proximate causes. Pages 13-68 *In: M. Vavra, W. Laycock, and R. Pieper, (eds), Ecological implications of livestock herbivory in the West.* Society for Range Management, Denver, CO.

Archer, S., 1996. Assessing and interpreting grass-woody plant dynamics. Pages 101-134 *In: J. Hodgson and A. Illius, (eds), The ecology and management of grazing systems.* CAB International, Wallingford, Oxon, United Kingdom.

Archer, S., and C. J. Stokes, 2000. Stress, disturbance and change in rangeland ecosystems. Pages 17-38 *In: O. Arnalds and S. Archer (eds). Rangeland desertification.* Kluwer Academic Publishers, Dordrecht, The Netherlands.

- Archer, S., D.S. Schimel, and E.A. Holland, 1995. Mechanisms of shrubland expansion: land use, climate or CO<sub>2</sub>? *Climatic Change*, **29**, 91-99.
- Archer, S., T.W. Boutton, and K.A. Hibbard. 2001. Trees in grasslands: biogeochemical consequences of woody plant expansion. Pages 115-138 *In*: E.-D. Schulze, M. Heimann, S. Harrison, E. Holland, J. Lloyd, I. Prentice, and D. Schimel, (eds), *Global biogeochemical cycles in the climate system*. Academic Press, San Diego.
- Arriaga, L., A.E. Castellanos, E. Moreno, and J. Alaron, 2004. Potential ecological distribution of alien invasive species and risk assessment: a case study of buffelgrass in arid regions of Mexico. *Conservation Biology*, **18**, 1504-1514.
- Ashmore, M.R., 2002. Effects of oxidants at the whole plant and community level. Pages 89-118 *In*: J.N.B. Bell and M. Treshow, (eds), *Air pollution and plant life*. John Wiley, Chichester, UK.
- Ashmore, M.R., 2005. Assessing the future global impacts of ozone on vegetation. *Plant Cell and Environment*, **28**, 949-964.
- Asner, G., and S. Archer, In Press: Global Biogeochemical cycles, livestock and carbon. *In*: H.A. Mooney, H. Steinfeld, F. Schneider, L.E. Neville, (eds), *Livestock in a Changing Landscape: Drivers, Consequences and Responses*. United Nations Island Press, Washington, D.C.
- Asner, G.P., C.E. Borghi, and R.A. Ojeda, 2003. Desertification in central Argentina: changes in ecosystem carbon and nitrogen from imaging spectroscopy. *Ecological Applications*, **13**, 629-648.
- Asner, G.P., S. Archer, R.F. Hughes, J. Ansley, and C.A. Wessman, 2003b. Net changes in regional woody vegetation cover and carbon storage in Texas drylands. *Global Change Biology*, **9**, 1937-1999.
- Asner, G., and S. Archer, 2008. Global Biogeochemical cycles, livestock and carbon. *In*: H.A. Mooney, H. Steinfeld, F. Schneider, L.E. Neville, (eds), *Livestock in a Changing Landscape: Drivers, Consequences and Responses*. United Nations Island Press, Washington, D.C.
- Atkin, O.K., and M.G. Tjoelker, 2003. Thermal acclimation and the dynamic response of plant respiration to temperature. *Trends in Plant Science*, **8**, 343-351.
- Atkin, O.K., E.J. Edwards, and B.R. Loveys, 2000. Response of root respiration to changes in temperature and its relevance to global warming. *New Phytologist*, **147**, 141-154.
- Auble, G.T., J.M. Friedman, and M.L. Scott, 1994. Relating riparian vegetation to present and future streamflows. *Ecological Applications*, **4**, 544-554.
- Austin AT, L. Yahdjian, J.M. Stark, J. Belnap, A. Porporato U. Norton, D.A. Ravetta, S.M. Schaeffer, 2004. Water pulses and biogeochemical cycles in arid and semiarid ecosystems. *Oecologia*, **141**, 221-235.

- Ayres, M.P., and M.J. Lombardero, 2000. Assessing the consequences of global change for forest disturbance from herbivores and pathogens. *Science of the Total Environment*, **262**, 263-286.
- Bachelet, D., R.P. Neilson, J.M. Lenihan, and R.J. Drapek, 2001. Climate change effects on vegetation distribution and carbon budget in the United States. *Ecosystems*, **4**, 164-185.
- Baldocchi, D., E. Falge, L.H. Gu, R. Olson, D. Hollinger, S. Running, P. Anthoni, C. Bernhofer, K. Davis, R. Evans, J. Fuentes, A. Goldstein, G. Katul, B. Law, X.H. Lee, Y. Malhi, T. Meyers, W. Munger, W. Oechel, K.T.P. U.K. Pilegaard, H.P. Schmid, R. Valentini, S. Verma, T. Vesala, K. Wilson, and S. Wofsy. 2001. FLUXNET: A new tool to study the temporal and spatial variability of ecosystem-scale carbon dioxide, water vapor, and energy flux densities. *Bulletin of the American Meteorological Society*, **82**, 2415-2434.
- Barnett, T.P., D.W. Pierce, H.G. Hidalgo, C. Bonfils, B.D. Santer, T. Das, G. Bala, A.W. Wood, T. Nozawa, A.A. Mirin, D.R. Cayan, and M.D. Dettinger, 2008. Human-induced changes in the hydrology of the western United States. *ScienceExpress*. 10.1126/science.1152538.
- Baldwin, C.K., F.H. Wagner, U. Lall, 2003. Water resources. Pages 79-112 In: F.H. Wagner, (ed). *Rocky Mountain/Great Basin Regional Climate-Change Assessment*. Report of the US Global Change Research Program. Utah State University, Logan, UT, 240pp.
- Bale, J.S., G.J. Masters, I.D. Hodkinson, C. Awmack, T.M. Bezemer, V.K. Brown, J. Butterfield, A. Buse, J.C. Coulson, J. Farrar, J.E.G. Good, R. Harrington, S. Hartley, T.H. Jones, R.L. Lindroth, M.C. Press, I. Symrnioudis, A.D. Watt, and J.B. Whittaker, 2002. Herbivory in global climate change research: direct effects of rising temperature on insect herbivores. *Global Change Biology*, **8**, 1-16.
- Beatley, J., 1967. Survival of winter annuals in northern Mojave Desert. *Ecology*, **48**, 745-759.
- Bebi, P., D. Kulakowski, and T.T. Veblen, 2003. Interactions between fire and spruce beetles in a subalpine rocky mountain forest landscape. *Ecology*, **84**, 362-371.
- Bechtold, W.A., and P.L. Patterson, (eds), 2005. *Forest inventory and analysis national sample design and estimation procedures, General Technical Report SRS-80*. USDA Forest Service, Asheville, NC, USA.
- Benavides-Solorio, J., and L.H. MacDonald. 2001. Post-fire runoff and erosion from simulated rainfall on small plots, Colorado Front Range. *Hydrological Processes*, **15**, 2931-2952.
- Bennett, I., 1959. *Glaze- its meteorology and climatology, geographic distribution, and economic effects, Technical Report EP-105*. U.S. Army Quartermaster Research and Engineering Command, Natick, MA.

- Berg, E.E., J.D. Henry, C.L. Fastie, A.D. De Volder, and S.M. Matsuoka, 2006. Spruce beetle outbreaks on the Kenai Peninsula, Alaska, and Kluane National Park and Reserve, Yukon Territory: Relationship to summer temperatures and regional differences in disturbance regimes. *Forest Ecology and Management*, **227**, 219-232.
- Bestelmeyer, B.T., J.P. Ward, and K.M. Havstad, 2006. Soil-geomorphic heterogeneity governs patchy vegetation dynamics at an arid ecotone. *Ecology*, **87**, 063-973.
- Bethlahmy, N., 1974. More streamflow after a bark beetle epidemic. *Journal of Hydrology*, **23**, 185-189.
- Bigler, C., D. Kulakowski, and T.T. Veblen, 2005. Multiple disturbance interactions and drought influence fire severity in Rocky Mountain subalpine forests. *Ecology*, **86**, 3018-3029.
- Birdsey, R., K. Pregitzer, and A. Lucier, 2006. Forest carbon management in the United States: 1600-2100. *Journal of Environmental Quality*, **35**, 1461-1469.
- Birdsey, R. A., and G.M. Lewis, 2002. *Carbon in U.S. Forests and Wood Products, 1987-1997: State-by-State Estimates, GTR-NE-310*. United States Department of Agriculture, Forest Service, Northeastern Research Station, Newtown Square, PA.
- Bisal, F., 1960. The effect of raindrop size and impact velocity on sand splash. *Canadian Journal of Soil Science*, **49**, 242-245.
- Black, T.A., W.J. Chen, A.G. Barr, M.A. Arain, Z. Chen, Z. Nestic, E.H. Hogg, H.H. Neumann, and P.C. Yang, 2000. Increased carbon sequestration by a boreal deciduous forest in years with a warm spring. *Geophysical Research Letters*, **27**, 1271-1274.
- Boisvenue, C., and S.W. Running, 2006. Impacts of climate change on natural forest productivity - evidence since the middle of the 20th century. *Global Change Biology*, **12**, 862-882.
- Bond, W.J., and G.F. Midgley, 2000. A proposed CO<sub>2</sub>-controlled mechanism of woody plant invasion in grasslands and savannas. *Global Change Biology*, **6**, 865-869.
- Boutton, T.W., S.R. Archer, and A.J. Midwood, 1999. Stable isotopes in ecosystem science: structure, function and dynamics of a subtropical savanna. *Rapid Communications in Mass Spectrometry*, **13**, 1263-1277.
- Bowers, J.E., 2005. Effects of drought on shrub survival and longevity in the northern Sonoran Desert. *Journal of the Torrey Botanical Society* **132**, 421-431.
- Bradley, B.A., R.A. Houghton, J.F. Mustard, and S.P. Hamburg, 2006. Invasive grass reduces aboveground carbon stocks in shrublands of the Western U.S.. *Global Change Biology*, **12**, 1815.
- Bragg, D.C., M.G. Shelton, and B. Zeide, 2003. Impacts and management implications of ice storms on forests in the southern United States. *Forest Ecology and Management*, **186**, 99-123.

- Brauman, K.A., G.C. Daily, T.K. Duarte, and H.A. Mooney, 2007. The Nature and Value of Ecosystem Services: An Overview Highlighting Hydrologic Services. *Annual Review of Environment and Resources*, **32**, 67-98
- Breshears, D.D., J.J. Whicker, M.P. Johansen, and J.E. Pinder, 2003. Wind and water erosion and transport in semi-arid shrubland, grassland and forest ecosystems: quantifying dominance of horizontal wind-driven transport. *Earth Surface Processes and Landforms*, **28**, 1189-1209.
- Breshears, D.D., N. S. Cobb, P.M. Rich, K.P. Price, C.D. Allen, R.G. Balice, W.H. Romme, J.H. Kastens, M.L. Floyd, J. Belnap, J.J. Anderson, O.B. Myers, and C.W. Meyer, 2005. Regional vegetation die-off in response to global-change-type drought. *Proceedings of the National Academy of Sciences of the United States of America*, **102**, 15144-15148.
- Brock, J.H, 1994. Tamarix spp. (salt cedar), an invasive exotic woody plant in arid and semi-arid riparian habitats of western USA. Pages 27-44 In: L. C. de Wall et al., (eds.), *Ecology and Management of Invasive Riverside Plants*. John Wiley, Hoboken, New Jersey.
- Brooks, M.L., 2003. Effects of increased soil nitrogen on the dominance of alien annual plants in the Mojave Desert. *Journal of Applied Ecology*, **40**, 344-353.
- Brooks, M.L., and K.H. Berry, 2006. Dominance and environmental correlates of alien annual plants in the Mojave Desert, USA. *Journal of Arid Environments*, **67**, 100-124.
- Brooks, M.L., C.M. D'Antonio, D.M. Richardson, J.B. Grace, J.E. Keeley, J.M. DiTomaso, R.J. Hobbs, M. Pellant, and D. Pyke, 2004. Effects of invasive alien plants on fire regimes. *BioScience*, **54**, 677-688.
- Brooks, R.T., 2004. Early regeneration following the presalvage cutting of hemlock from hemlock-dominated stands. *Northern Journal of Applied Forestry*, **21**, 12-18.
- Brown, D. E., editor. 1994. *Biotic communities of the American Southwest United States and Mexico*. University of Utah Press, Salt Lake City.
- Brown, T.J., B.L. Hall, and A.L. Westerling, 2004. The impact of twenty-first century climate change on wildland fire danger in the western United States: An applications perspective. *Climatic Change*, **62**, 365-388.
- Browning, D., S.R. Archer, G.P. Asner, M.P. McClaran, and C.A. Wessman, 2008. Woody plants in grasslands: post-encroachment stand dynamics. *Ecological Applications*, In Press.
- Bruhn, D., J.W. Leverenz, and H. Saxe, 2000. Effects of tree size and temperature on relative growth rate and its components of *Fagus sylvatica* seedlings exposed to two partial pressures of atmospheric [CO<sub>2</sub>]. *New Phytologist*, **146**, 415-425.
- Bunn, S.E., M.C. Thoms, S.K. Hamilton, and S.J. Capon, 2006. Flow variability in dryland rivers: boom, bust, and the bits in between. *River Research and Applications*, **22**, 179-186.

Butin, E., A.H. Porter, and J. Elkinton, 2005. Adaptation during biological invasions and the case of *Adelges tsugae*. *Evolutionary Ecology Research*, **7**, 887-900.

Byrne, T., C. Stonestreet, and B. Peter, 2006. Characteristics and utilization of post-mountain pine beetle wood in solid wood products. Pages 233-253 *In*: L. Safranyik and B. Wilson, (eds.), *The Mountain Pine Beetle: A Synthesis of Biology, Management, and Impacts on Lodgepole Pine*. Pacific Forestry Centre, Canadian Forest Service, Natural Resources Canada, Victoria, BC, Canada.

Calkin, D.E., K.M. Gebert, J.G. Jones, and R.P. Neilson, 2005. Forest service large fire area burned and suppression expression trends, 1970-2002. *Journal of Forestry*, **103**, 179-183.

Canadell, J., R.B. Jackson, J.R. Ehleringer, H.A. Mooney, O.E. Sala, and E.D. Schulze, 1996. Maximum rooting depth of vegetation types at the global scale. *Oecologia*, **108**, 583-595.

Cannell, M.G. R., J.H.M. Thornley, D.C. Mobbs, and A.D. Friend, 1998. UK conifer forests may be growing faster in response to increased N deposition, atmospheric CO<sub>2</sub> and temperature. *Forestry*, **71**, 277-296.

Carroll, A.L., S.W. Taylor, J. Regniere, and L. Safranyik, 2004. Effects of climate change on range expansion by the mountain pine beetle in British Columbia. Pages 223-232 *In*: *Mountain Pine Beetle Symposium: Challenges and Solutions*. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Kelowna, BC.

Canadell, J.G., D.E. Pataki, R. Gifford, R.A. Houghton, Y. Luo, M.R. Raupach, P. Smith, and W. Steffen, 2007. Saturation of the terrestrial carbon sink. Pages 59-78 *In*: J.G. Canadell, D.E. Pataki, and L.F. Pitelka, (eds), *Terrestrial ecosystems in a changing world*. Springer-Verlag, Berlin.

Cayan, D.R., S.A. Kammerdiener, M.D. Dettinger, J.M. Caprio, and D.H. Peterson, 2001. Changes in the onset of spring in the western United States. *Bulletin American Meteorological Society*, **82**, 399-415.

CCSP 4.2. 2008. Thresholds of change in ecosystems. U.S. Climate Change Science Program Synthesis and Assessment Product 4.2.

Chadwick, O A., L.A. Derry, P.M. Vitousek, B.J. Huebert, and L.O. Hedin, 1999. Changing sources of nutrients during four million years of ecosystem development. *Nature*, **397**, 491-497.

Chambers, J.Q., J.I. Fisher, H. Zeng, E.L. Chapman, D.B. Baker, and G.C. Hurtt, 2007. Hurricane Katrina's carbon footprint on U.S. Gulf Coast forests. *Science*, **318**, 1107.

Chavez, P.S., Jr., D.J. Mackinnon, R.L. Reynolds, and M.G. Velasco, 2002. Use of satellite and ground-based images to monitor dust storms and map landscape vulnerability to wind erosion. Page 98 *In*: *Proceedings of ICAR5/GCTE-SEN Joint Conference, International Center for Arid and Semiarid Lands Studies*, Texas Tech University, Lubbock, Texas, USA.

Chomette, O., M. Legrand, and B. Marticorena, 1999. Determination of the wind speed threshold for the emission of desert dust using satellite remote sensing in the thermal infrared. *Journal of Geophysical Research*, **104**, 31207-31215.

Christensen, N.S., A.W. Wood, N. Voisin, D.P. Lettenmaier, and R.N. Palmer, 2004. The effects of climate change on the hydrology and water resources of the Colorado River basin. *Climatic Change*, **62**, 337-363.

Chuine, I., and E.G. Beaubien, 2001. Phenology is a major determinant of tree species range. *Ecology Letters*, **4**, 500-510.

Clarke, P.J., P.K. Latz, and D.E. Albrecht, 2005. Long-term changes in semi-arid vegetation: Invasion of an exotic perennial grass has larger effects than rainfall variability. *Journal of Vegetation Science*, **16**, 237-248.

Cleverly, J.R., C.N. Dahm, J.R. Thibault, D.E. McDonnell, and J.E.A. Coonrod, 2006. Riparian ecohydrology: regulation of water flux from the ground to the atmosphere in the Middle Rio Grande, New Mexico *Hydrological Processes*, **20**, 3207-3225.

Cohen, S., K. Miller, K. Duncan, E. Gregorich, P. Groffman, P. Kovacs, V. Magaña, D. McKnight, E. Mills, and D. Schimel. 2001. North America. In: J.J. McCarthy, O.F. Canziani, N. A. Leary, D. J. Dokken, and K. S. White, (eds), *Climate Change 2001: Impacts, Adaptation and Vulnerability*. Intergovernmental Panel on Climate Change, Washington, D.C.

Cobb, R.C., D.A. Orwig, and S. Currie, 2006. Decomposition of green foliage in eastern hemlock forests of southern New England impacted by hemlock woolly adelgid infestations. *Canadian Journal of Forest Research-Revue Canadienne De Recherche Forestiere*, **36**, 1331-1341.

Cole, K., 1985. Past rates of change, species richness and a model of vegetation inertia in the Grand Canyon, Arizona. *American Naturalist*, **125**, 289-303.

Colorado State Forest Service, 2007. 2006 Report on the Health of Colorado's Forests. Colorado Department of Natural Resources, Division of Forestry.

Cooper, C.F., 1983. Carbon storage in managed forests. *Canadian Journal of Forest Research* **13**, 155-66.

Conant, R.T., J.M. Klopatek, R.C. Malin, and C.C. Klopatek, 1998. Carbon pools and fluxes along an environmental gradient in northern Arizona. *Biogeochemistry*, **43**, 43-61.

Conil, S., and A. Hall, 2006. Local regimes of atmospheric variability: A case study of southern California. *Journal of Climate*, **19**, 4308-4325.

- Constantz, J., A.E. Stewart, R. Niswonger, and L. Sarma, 2002. Analysis of temperature profiles for investigating stream losses beneath ephemeral channels. *Water Resources Research*, **38**, 52.51 - 52.13.
- Constantz, J., and C.L. Thomas, 1997. Streambed temperature profiles as indicators of percolation characteristics beneath arroyos in the Middle Rio Grande basin, USA. *Hydrological Processes*, **11**, 1621-1634.
- Cornelis, W.M., D. Gabriels, and R. Hartmann, 2004. A parameterisation for the threshold shear velocity to initiate deflation of dry and wet sediment. *Geomorphology*, **59**, 43-51.
- Costanza, R., R. d'Arge, R. deGroot, S. Farber, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R.V. Oneill, J. Paruelo, R.G. Raskin, P. Sutton, and M. vandenBelt, 1997. The value of the world's ecosystem services and natural capital. *Nature*, **387**, 253-260.
- Cowley, D.E., 2006. Strategies for ecological restoration of the Middle Rio Grande in New Mexico and recovery of the endangered Rio Grande silvery minnow. *Reviews in Fisheries Science*, **14**, 169-186.
- Curtis, P.S., and X. Wang, 1998. A meta-analysis of elevated CO<sub>2</sub> effects on woody plant mass, form and physiology. *Oecologia*, **113**, 299-313.
- da Silva, R.R., G. Bohrer, D. Werth, M.J. Otte, and R. Avissar, 2006. Sensitivity of ice storms in the southeastern United States to Atlantic SST - Insights from a case study of the December 2002 storm. *Monthly Weather Review*, **134**, 1454-1464.
- Dahm, C.N., J.R. Cleverly, J.E. A. Coonrod, J.R. Thibault, D.E. McDonnell, and D.J. Gilroy, 2002. Evapotranspiration at the land/water interface in a semi-arid drainage basin. *Freshwater Biology*, **47**, 831-843.
- Daily, G.C., T. Soderqvist, S. Aniyar, K. Arrow, P. Dasgupta, P.R. Ehrlich, C. Folke, A. Jansson, B.O. Jansson, N. Kautsky, S. Levin, J. Lubchenco, K.G. Maler, D. Simpson, D. Starrett, D. Tilman, and B. Walker, 2000. Ecology - The value of nature and the nature of value. *Science*, **289**, 395-396.
- Dale, V.H., 1997. The relationship between land-use change and climate change. *Ecological Applications*, **7**, 753-769.
- Dale, V.H., L.A. Joyce, S. McNulty, R.P. Neilson, M.P. Ayres, M.D. Flannigan, P.J. Hanson, L.C. Irland, A.E. Lugo, C.J. Peterson, D. Simberloff, F.J. Swanson, B.J. Stocks, and B.M. Wotton, 2001. Climate change and forest disturbances. *BioScience*, **51**, 723-734.
- Danby, R.K., and D.S. Hik, 2007. Responses of white spruce (*Picea glauca*) to experimental warming at a subarctic alpine treeline. *Global Change Biology*, **13**, 437-451.
- Daniels, T., 1999. *When city and country collide*. Island Press, Washington, DC.

D'Antonio, C.M., and P.M. Vitousek, 1992. Biological invasions by exotic grasses, the grass fire cycle, and global change. *Annual Review of Ecology and Systematics*, **23**, 63-87.

Davidson, E.A., and I.A. Janssens, 2006. Temperature sensitivity of soil carbon decomposition and feedbacks to climate change. *Nature*, **440**, 165-173.

de Graaff, M.A., K.J. van Groenigen, J. Six, B. Hungate, and C. van Kessel, 2006. Interactions between plant growth and soil nutrient cycling under elevated CO<sub>2</sub>: a meta-analysis. *Global Change Biology*, **12**, 2077-2091.

Denning, A. S., editor. 2005. *Science Implementation Strategy for the North American Carbon Program*. Report of the NACP Implementation Strategy Group of the U.S. Carbon Cycle Interagency Working Group. U.S. Carbon Cycle Science Program, Washington, DC.

D'Odorico, P., F. Laio, and L. Ridolfi, 2006. A probabilistic analysis of fire-induced tree-grass coexistence in savannas. *The American Naturalist*, **167**, E79-E87.

Dole, K.P., M.E. Loik, and L.C. Sloan, 2003. The relative importance of climate change and the physiological effects of CO<sub>2</sub> on freezing tolerance for the future distribution of *Yucca brevifolia*. *Global and Planetary Change*, **36**, 137-146.

Donner, B. and S. Running, 1986. Water stress response after thinning *Pinus contorta* stands in Montana. *Forest Science*, **32**, 614-625.

Drezner, T.D., 2006. Saguaro (*Carnegiea gigantea*) densities and reproduction over the northern Sonoran Desert. *Physical Geography*, **27**, 505-518.

Duce, R.A., and N.W. Tindale, 1991. Atmospheric transport of iron and its deposition in the ocean. *Limnology and Oceanography*, **36**, 1715-1726.

Dugas, W.A., R.A. Hicks, and R.P. Gibbens, 1996. Structure and function of C-3 and C-4 Chihuahuan Desert plant communities. Energy balance components. *Journal of Arid Environments*, **34**, 63-79.

Duffy, P.A., J.E. Walsh, J.M. Graham, D.H. Mann, and T.S. Rupp, 2005. Impacts of large-scale atmospheric-ocean variability on Alaskan fire season severity. *Ecological Applications*, **15**, 1317-1330.

Easterling, D.R., 2002. Recent changes in frost days and the frost-free season in the United States. *Bulletin of the American Meteorological Society*, **83**, doi: 10.1175/1520-0477.

Ehleringer, J.R., T.E. Cerling, and B.R. Helliker, 1997. C-4 photosynthesis, atmospheric CO<sub>2</sub> and climate. *Oecologia*, **112**, 285-299.

Emmerich, W.E., 2007. Ecosystem water use efficiency in a semiarid shrubland and grassland community. *Rangeland Ecology & Management*, **60**, 464-470.

- Ellison, W.D., 1944. Studies of raindrop erosion. *Agricultural Engineering*, **25**, 131-136, 181-182.
- Eschtruth, A.K., N.L. Cleavitt, J.J. Battles, R.A. Evans, and T.J. Fahey, 2006. Vegetation dynamics in declining eastern hemlock stands: 9 years of forest response to hemlock woolly adelgid infestation. *Canadian Journal of Forest Research-Revue Canadienne De Recherche Forestiere*, **36**, 1435-1450.
- Fagre, D.B., D.L. Peterson, and A.E. Hessler, 2003. Taking the pulse of mountains: Ecosystem responses to climatic variability. *Climatic Change*, **59**, 263-282.
- Fang, C.M., P. Smith, J.B. Moncrieff, and J.U. Smith, 2005. Similar response of labile and resistant soil organic matter pools to changes in temperature. *Nature*, **433**, 57-59.
- Farid, A., D.C. Goodrich, and S. Sorooshian, 2006. Using airborne lidar to discern age classes of cottonwood trees in a riparian area. *Western Journal of Applied Forestry*, **21**, 149-158.
- Fearnside, P.M., 2002. Time preference in global warming calculations: a proposal for a unified index. *Ecological Economics*, **41**, 21-31.
- Feng, S., and Q. Hu, 2004. Changes in agro-meteorological indicators in the contiguous United States: 1951-2000. *Theoretical and Applied Climatology*, **78**, 247-264.
- Fenn, M.E., J.S. Baron, E.B. Allen, H.M. Reuth, K.R. Nydick, L. Geiser, W.D. Bowman, J.O. Sickman, T. Meixner, D.W. Johnson, and P. Neitlich, 2003. Ecological effects of nitrogen deposition in the western United States. *BioScience*, **53**, 404-420.
- Ferguson, A., 2004. Challenges and solutions - An industry perspective. Pages 223-232 In: *Mountain Pine Beetle Symposium: Challenges and Solutions*. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Kelowna, BC.
- Field, C.B., D.B. Lobell, H.A. Peters, and N.R. Chiariello, 2007. Feedbacks of terrestrial ecosystems to climate change. *Annual Review of Environment and Resources*, **32**, 1-29.
- Field, C.B., L.D. Mortsch, M. Brklacich, D.L. Forbes, P. Kovacs, J.A. Patz, S.W. Running, and M.J. Scott, 2007: *Climate change 2007: Impacts, adaptation and vulnerability*. Cambridge University Press, Cambridge, UK.
- Finzi, A.C., D.J.P. Moore, E.H. DeLucia, J. Lichter, K.S. Hofmockel, R.B. Jackson, H.S. Kim, R. Matamala, H.R. McCarthy, R. Oren, J.S. Phippen, and W.H. Schlesinger, 2006. Progressive nitrogen limitation of ecosystem processes under elevated CO<sub>2</sub> in a warm-temperate forest. *Ecology*, **87**, 15-25.
- Finzi, A.C., E.H. DeLucia, J.G. Hamilton, D.D. Richter, and W.H. Schlesinger, 2002. The nitrogen budget of a pine forest under free air CO<sub>2</sub> enrichment. *Oecologia*, **132**, 567-578.

- Fisher, J.I., A.D. Richardson, and J.F. Mustard, 2007. Phenology model from surface meteorology does not capture satellite-based greenup estimations. *Global Change Biology*, **13**, 707-721.
- Flanner, M.G., C.S. Zender, J.T. Randerson, and P.J. Rasch, 2007. Present day climate forcing and response from black carbon in snow. *Journal of Geophysical Research-Atmospheres*: (In Press)
- Flannigan, M.D., B.J. Stocks, and B.M. Wotton, 2000. Climate change and forest fires. *Science of the Total Environment*, **262**, 221-229.
- Flannigan, M.D., K.A. Logan, B.D. Amiro, W.R. Skinner, and B.J. Stocks, 2005. Future area burned in Canada. *Climatic Change*, **72**, 1-16.
- Fleischner, T.L., 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology*, **8**, 629-644.
- Fleming, R.A., 2000. Climate change and insect disturbance regimes in Canada's boreal forests. *World Resources Review*, **12**, 520-555.
- Flowers, R.W., S.M. Salom, and L.T. Kok, 2006. Competitive interactions among two specialist predators and a generalist predator of hemlock woolly adelgid, *Adelges tsugae* (Hemiptera : Adelgidae) in south-western Virginia. *Agricultural and Forest Entomology*, **8**, 253-262.
- Franklin, K.A., K. Lyons, P.L. Nagler, D. Lampkin, E.P. Glenn, F. Molina-Freaner, T. Markow, and A.R. Huete, 2006. Buffelgrass (*Pennisetum ciliare*) land conversion and productivity in the plains of Sonora, Mexico. *Biological Conservation*, **127**, 62-71.
- Fredrickson, E., K.M. Havstad, and R. Estell, 1998. Perspectives on desertification: south-western United States. *Journal of Arid Environments*, **39**, 191-207.
- Fries, A., D. Lindgren, C.C. Ying, S. Ruotsalainen, K. Lindgren, B. Elfving, and U. Karlmat, 2000. The effect of temperature on site index in western Canada and Scandinavia estimated from IUFRO *Pinus contorta* provenance experiments. *Canadian Journal of Forest Research*, **30**, 921-929.
- Galloway, J.N., F.J. Dentener, D.G. Capone, E.W. Boyer, R.W. Howarth, S.P. Seitzinger, G.P. Asner, C.C. Cleveland, P.A. Green, E.A. Holland, D.M. Karl, A.F. Michaels, J.H. Porter, A.R. Townsend, and C.J. Vorosmarty, 2004. Nitrogen cycles: past, present, and future. *Biogeochemistry*, **70**, 153-226.
- Geron, C., A. Guenther, J. Greenberg, T. Karl, and R. Rasmussen, 2006. Biogenic volatile organic compound emissions from desert vegetation of the southwestern U.S. *Atmospheric Environment*, **40**, 165-1660.

Gibson, K.E. 2006. Mountain pine beetle conditions in whitebark pine stands in the Greater Yellowstone Ecosystem, 2006. R1Pub06-03, USDA Forest Service, Northern Region, Missoula. Forest Health Protection Report.

Gill, R.A. and R.B. Jackson, 2000. Global patterns of root turnover for terrestrial ecosystems. *New Phytologist*, **147**:13-31.

Gillett, N.P., A.J. Weaver, F.W. Zwieters, and M.D. Flannigan, 2004. Detecting the effect of climate change on Canadian forest fires. *Geophysical Research Letters*, **31**, 1-4, L18211, doi:10.1029/2004GL020876, 2004.

Gillette, D.A., and A.M. Pitchford, 2004. Sand flux in the northern Chihuahuan Desert, New Mexico, USA, and the influence of mesquite-dominated landscapes. *Journal of Geophysical Research-Earth Surface*, **109**, F04003.

Gillson, L. and M.T. Hoffman, 2007. Rangeland ecology in a changing world. *Science*, **315**, 53-54.

Gitlin, A.R., C.M. Sthultz, M.A. Bowker, S. Stumpf, K.L. Paxton, K. Kennedy, A. Munoz, J.K. Bailey, and T.G. Whitham, 2006. Mortality gradients within and among dominant plant populations as barometers of ecosystem change during extreme drought. *Conservation Biology*, **20**, 1477-1486.

Gonzelez-Meller, M.A., L. Taneva, and R.J. Trueman, 2004. Plant respiration and elevated atmospheric CO<sub>2</sub> concentration: Cellular responses and global significance. *Annals of Botany*, **94**, 647-656.

Goodrich, D.C., R. Scott, J. Qi, et al. 2000. Seasonal estimates of riparian evapotranspiration using remote and in situ measurements. *Agricultural and Forest Meteorology*, **105**, 281-309.

Goslee, S.C., W.A. Niering, D.L. Urban, and N.L. Christensen, 2005. Influence of environment, history and vegetative interactions on stand dynamics in a Connecticut forest. *Journal of the Torrey Botanical Society*, **132**, 471-482.

Gower, S.T., K.A. Vogt, and C.C. Grier, 1992. Carbon dynamics of Rocky Mountain Douglas-fir: influence of water and nutrient availability. *Ecological Monographs*, **62**, 43-65.

Gregoire, T.G., and H.T. Valentine, In Press. Sampling strategies for natural resources and the environment. Chapman&Hall/CRC Press.

Grice, A.C., 2006. The impacts of invasive plant species on the biodiversity of Australian rangelands. *The Rangeland Journal*, **28**, 1-27

Griffin, D.W., V.H. Garrison, J.R. Herman, and E.A. Shinn, 2001. African desert dust in the Caribbean atmosphere: microbiology and public health. *Aerobiologia*, **17**, 203-213.

- Groffman, P., J. Baron, T. Blett, A. Gold, I. Goodman, L. Gunderson, B. Levinson, M. Palmer, H. Paerl, G. Peterson, N. Poff, D. Rejeski, J. Reynolds, M. Turner, K. Weathers, and J. Wiens, 2006. Ecological thresholds: The key to successful environmental management or an important concept with no practical application? *Ecosystems*, **9**, 1-13.
- Grulke, N.E., and P.R. Miller, 1994. Changes in gas exchange characteristics during the life span of giant sequoia: implications for response to current and future concentrations of atmospheric ozone. *Tree Physiology*, **14**, 659-668.
- Grunzweig, J.M., T. Lin, E. Rotenberg, A. Schwartz, and D. Yakir, 2003. Carbon sequestration in arid-land forest. *Global Change Biology*, **9**, 791-799.
- Guenther, A., S. Archer, J. Greenberg, P. Harley, D. Helmig, L. Klinger, L. Vierling, M. Wildermuth, P. Zimmerman, and S. Zitzer, 1999. Biogenic hydrocarbon emissions and land cover/climate change in a subtropical savanna. *Physics and Chemistry of the Earth (B)*, **24**, 659-667.
- Hall, F.C., 2002. *Photo point monitoring handbook: Part A- Field Procedures*. USDA Forest Service Pacific Northwest Station Gen Tech Rep PNW-GTR-526.
- Hamilton, S.K., S.E. Bunn, M.C. Thoms, and J. Marshall, 2005. Persistence of aquatic refugia between flow pulses in a dryland river system (Cooper Creek, Australia). *Limnology and Oceanography*, **50**, 743-754.
- Hansen, A.J., and D.G. Brown, 2005. Land-use change in rural America: rates, drivers, and consequences. *Ecological Applications*, **15**, 1849-1850.
- Hansen, A.J., R.R. Neilson, V.H. Dale, C.H. Flather, L.R. Iverson, D.J. Currie, S. Shafer, R. Cook, and P.J. Bartlein, 2001a. Global change in forests: Responses of species, communities, and biomes. *BioScience*, **51**, 765-779.
- Hansen, E.M., and B. Bentz, 2003. Comparison of reproductive capacity among univoltine, semivoltine, and re-emerged parent spruce beetles (Coleoptera: Scolytidae). *Canadian Entomologist*, **135**, 697-712.
- Hansen, M.E., B.J. Bentz, and D.L. Turner, 2001b. Temperature-based model for predicting univoltine brood proportions in spruce beetle (Coleoptera: Scolytidae). *Canadian Entomologist*, **133**, 827-841.
- Hanson, P.J., and J.F. Weltzin, 2000. Drought disturbance from climate change: response of United States forests. *Science of the Total Environment*, **262**, 205-220.
- Hanson, P.J., S.D. Wullschleger, R.J. Norby, T.J. Tschaplinski, and C.A. Gunderson, 2005. Importance of changing CO<sub>2</sub>, temperature, precipitation, and ozone on carbon and water cycles of an upland-oak forest: Incorporating experimental results into model simulations. *Global Change Biology*, **11**, 1402-1423.

- Hanson, P.J., D.E. Todd, Jr., and J.S. Amthor, 2001. A six-year study of sapling and large-tree growth and mortality responses to natural and induced variability in precipitation and throughfall. *Tree Physiology*, **21**, 345-358.
- Harden, J.W., S.E. Trumbore, B.J. Stocks, A. Hirsch, S.T. Gower, K.P. O'Neill, and E.S. Kasischke, 2000. The role of fire in the boreal carbon budget. *Global Change Biology*, **6**, 174-184.
- Hargrove, W.W., F.M. Hoffman, and B.E. Law, 2003. New analysis reveals representativeness of the AmeriFlux network. *EOS Transactions*, **84**, 529-535.
- Harley, P.C., R.K. Monson, and M.T. Lerdau, 1999. Ecological and evolutionary aspects of isoprene emission from plants. *Oecologia*, **118**, 109-123.
- Hart, R.H., and W.A. Laycock, 1996. Repeat photography on range and forest lands in the western United States. *Journal of Range Management*, **49**, 60-67.
- Hastings, A., K. Cuddington, K.F. Davies, C.J. Dugaw, S. Elmendorf, A. Freestone, S. Harrison, M. Holland, J. Lambrinos, U. Malvadkar, B.A. Melbourne, K. Moore, C. Taylor, and D. Thomson, 2005a. The spatial spread of invasions: new developments in theory and evidence. *Ecology Letters*, **8**, 91-101.
- Hastings, S.J., W.C. Oechel, and A. Muhlia-Melo, 2005b. Diurnal, seasonal and annual variation in the net ecosystem CO<sub>2</sub> exchange of a desert shrub community (*Sarcocaula*) in Baja California, Mexico. *Global Change Biology*, **11**, 927-939.
- Hereford, R., R.H. Webb, and C.I. Longpré, 2006. Precipitation history and ecosystem response to multi-decadal precipitation variability in the Mojave Desert region, 1893-2001. *Journal of Arid Environments*, **67**, 13-34.
- Hershey, R.L. and S.A. Mizell, 1995. Water chemistry of spring discharge from the carbonate-rock province of Nevada and California. Volume 1. *Desert Research Institute Publication No.* 41140.
- Hershler, R. and D.W. Sada, 2002. Biogeography of Great Basin freshwater snails of the genus *Pyrgulopsis*. Pages 255-276. In: R. Hershler, D.B. Madsen, and D.R. Currey (eds.). *Great Basin Aquatic Systems History*. Smithsonian Contributions to Earth Sciences, Number 33.
- Hicke, J.A., G.P. Asner, J.T. Randerson, C. Tucker, S. Los, R. Birdsey, J.C. Jenkins, and C. Field, 2002a. Trends in North American net primary productivity derived from satellite observations, 1982-1998. *Global Biogeochemical Cycles*, **16**, 1-16, 1018, doi:10.1029/2001GB001550, 2002.
- Hicke, J.A., G.P. Asner, J.T. Randerson, C. Tucker, S. Los, R. Birdsey, J.C. Jenkins, C. Field, and E. Holland, 2002b. Satellite-derived increases in net primary productivity across North America, 1982-1998. *Geophysical Research Letters*, **29**, 1-4, 1427, doi:10.1029/2001GL013578, 2002.

- Hicke, J.A., J.A. Logan, J. Powell, and D.S. Ojima, 2006. Changing temperatures influence suitability for modeled mountain pine beetle (*Dendroctonus ponderosae*) outbreaks in the western United States. *Journal of Geophysical Research-Biogeosciences*, **111**, G02019, doi:02010.01029/02005JG000101.
- Hinzman, L.D., N.D. Bettez, W.R. Bolton, F.S. Chapin, M.B. Dyurgerov, C.L. Fastie, B. Griffith, R.D. Hollister, A. Hope, H.P. Huntington, A.M. Jensen, G.J. Jia, T. Jorgenson, D.L. Kane, D.R. Klein, G. Kofinas, A. H. Lynch, A.H. Lloyd, A.D. McGuire, F.E. Nelson, W.C. Oechel, T.E. Osterkamp, C.H. Racine, V.E. Romanovsky, R.S. Stone, D.A. Stow, M. Sturm, C.E. Tweedie, G.L. Vourlitis, M.D. Walker, D.A. Walker, P.J. Webber, J.M. Welker, K. Winker, and K. Yoshikawa, 2005. Evidence and implications of recent climate change in northern Alaska and other arctic regions. *Climatic Change*, **72**, 251-298.
- Hobbs, R.J., and L.F. Huenneke, 1992. Disturbance, diversity, and invasion - implications for conservation. *Conservation Biology*, **6**, 324-337.
- Hobbs, R.J., S. Arico, J. Aronson, J.S. Baron, P. Bridgewater, V.A. Cramer, P.R. Epstein, J.J. Ewel, C.A. Klink, A.E. Lugo, D. Norton, D. Ojima, D.M. Richardson, E.W. Sanderson, F. Valladares, M. Vila, R. Zamora, and M. Zobel, 2006. Novel ecosystems: theoretical and management aspects of the new ecological world order. *Global Ecology and Biogeography*, **15**, 1-7.
- Holechek, J.L., R.D. Pieper, and C.H. Herbel, 2003. *Range management: principles and practices*. Fifth edition. Prentice-Hall, London.
- Hollinger, D.Y., J. Aber, B. Dail, E.A. Davidson, S.M. Goltz, H. Hughes, M.Y. Leclerc, J.T. Lee, A.D. Richardson, C. Rodrigues, N.A. Scott, D. Achuatavariar, and J. Walsh, 2004. Spatial and temporal variability in forest-atmosphere CO<sub>2</sub> exchange. *Global Change Biology*, **10**, 1689-1706.
- Holmgren, M., and M. Scheffer, 2001. El Niño as a window of opportunity for the restoration of degraded arid ecosystems. *Ecosystems*, **4**, 151-159.
- Holmgren, M., P. Stapp, C.R. Dickman, C. Gracia, S. Graham, J. Gutierrez, C. Hice, et. al., 2006. Extreme climatic events shape arid and semi-arid ecosystems. *Frontiers in Ecology and the Environment*, **4**, 87-95.
- Holsten, E.H., R.A. Werner, and R.L. Develice, 1995. Effects of a spruce beetle (Coleoptera: Scolytidae) outbreak and fire on Lutz spruce in Alaska. *Environmental Entomology*, **24**, 1539-1547.
- Holsten, E.H., R.W. Thier, A.S. Munson, and K.E. Gibson, 1999. *The Spruce Beetle. Forest Insect and Disease Leaflet 127*, USDA Forest Service.
- Holzappel, C., and B.E. Mahall, 1999. Bidirectional facilitation and interference between shrubs and annuals in the Mojave Desert. *Ecology*, **80**, 1747-1761.

- Hooper, D.U., and L. Johnson, 1999. Nitrogen limitation in dryland ecosystems: response to geographical and temporal variations in precipitation. *Biogeochemistry*, **46**, 247-293.
- Horton, J.L., T.E. Kolb, and S.C. Hart, 2001a. Responses of riparian trees to interannual variation in ground water depth in a semi-arid river basin. *Plant Cell and Environment*, **24**, 293-304.
- Horton, J. L., T.E. Kolb, and S.C. Hart, 2001b. Physiological response to groundwater depth varies among species and with river flow regulation. *Ecological Applications*, **11**, 1046-1059.
- Hueneke, L.F., J.P. Anderson, M. Remmenga, and W.H. Schlesinger, 2002. Desertification alters patterns of aboveground net primary production in Chihuahuan ecosystems. *Global Change Biology*, **8**, 247-264.
- Hughes, L. 2000. Biological consequences of global warming: is the signal already apparent? *Trends in Ecology & Evolution*, **15**, 56-61.
- Hummel, S., and J.K. Agee 2003. Western spruce budworm defoliation effects on forest structure and potential fire behavior. *Northwest Science*, **77**, 159-169.
- Hunter, R., 1991. Bromus invasions on the Nevada Test Site - present status of *B. rubens* and *B. tectorum* with notes on their relationship to disturbance and altitude. *Great Basin Naturalist*, **51**, 176-182.
- Huxman T.E., J.M. Cable, D.D. Ignace, A.J. Eilts, N. English, J. Weltzin, D.G. Williams, 2004. Response of net ecosystem gas exchange to a simulated precipitation pulse in a semiarid grassland: the role of native versus non-native grasses and soil texture. *Oecologia*, **141**, 295-305.
- Huxman, T.E., and S.D. Smith, 2001. Photosynthesis in an invasive grass and native forb at elevated CO<sub>2</sub> during an El Niño year in the Mojave Desert. *Oecologia*, **128**, 193-201.
- Huxman, T.E., K.A. Snyder, D.T. Tissue, A.J. Leffler, K. Ogle, W.T. Pockman, D.R. Sandquist, D.L. Potts, and S. Schwinning, 2004. Precipitation pulses and carbon fluxes in semiarid and arid ecosystems. *Oecologia*, **141**, 254-268.
- Hyvonen, R., G.I. Agren, S. Linder, T. Persson, M.F. Cotrufo, A. Ekblad, M. Freeman, A. Grelle, I. A. Janssens, P. G. Jarvis, S. Kellomaki, A. Lindroth, D. Loustau, T. Lundmark, R.J. Norby, R. Oren, K. Pilegaard, M.G. Ryan, B. D. Sigurdsson, M. Stromgren, M. van Oijen, and G. Wallin, 2007. The likely impact of elevated [CO<sub>2</sub>], nitrogen deposition, increased temperature and management on carbon sequestration in temperate and boreal forest ecosystems: a literature review. *New Phytologist*, **173**, 463-480.
- Ibarra, F.A., J.R. Cox, M.H. Martin, T.A. Cowl, and C.A. Call, 1995. Predicting buffelgrass survival across a geographical and environmental gradient. *Journal of Range Management*, **48**, 53-59.

IPCC, 2007. *Climate Change 2007: The Physical Science Basis IPCC WGI Fourth Assessment Report, Policy Maker Summary*, Intergovernmental Panel on Climate Change, Working Group I, Fourth Assessment Report.

Irvine, J., B.E. Law, M.R. Kurpius, P.M. Anthoni, D. Moore, and P.A. Schwarz, 2004. Age-related changes in ecosystem structure and function and effects on water and carbon exchange in ponderosa pine. *Tree Physiology*, **24**, 753-763.

Ivans, S., L. Hipps, A. Leffler, and C.V. Ivans, 2006. Response of water vapor and CO<sub>2</sub> fluxes in semiarid lands to seasonal and intermittent precipitation pulses. *Journal of Hydrometeorology*, **7**, 995-1010.

Jackson, R.B., J.L. Banner, E.G. Jobbagy, W.T. Pockman, and D.H. Wall, 2002. Ecosystem carbon loss with woody plant invasion of grassland. *Nature*, **418**, 623-626.

Jackson, R.B., and W.H. Schlesinger, 2004. Curbing the U.S. carbon deficit. *Proceedings of the National Academy of Science*, **101**, 15827-15829.

Jarvis P., A. Rey, C. Petsikos, L. Wingate, M. Rayment, J. Pereira, J. Banza, J. David, F. Miglietta, M. Borghetti, G. Manca, R. Valentini, 2007. Drying and wetting of Mediterranean soils stimulates decomposition and carbon dioxide emission: The “Birch effect.” *Tree Physiology*, **27**, 929-940.

Jastrow, J.D., R.M. Miller, R. Matamala, R.J. Norby, T.W. Boutton, C.W. Rice, and C.E. Owensby, 2005. Elevated atmospheric carbon dioxide increases soil carbon. *Global Change Biology*, **11**, 2057-2064.

Jepsen, R., R. Langford, J. Roberts, and J. Gailani, 2003. Effects of arroyo sediment influxes on the Rio Grande River channel near El Paso, Texas. *Environmental & Engineering Geoscience*, **9**, 305-312.

Jickells, T.D., Z.S. An, K.K. Andersen, et al., 2005. Global iron connections between desert dust, ocean biogeochemistry and climate. *Science*, **308**, 67-71.

Jobbagy, E.G., and R.B. Jackson, 2000. The vertical distribution of soil organic carbon and its relation to climate and vegetation. *Ecological Applications*, **10**, 423-436.

Johnson, D.W., 2006. Progressive N limitation in forests: review and implications for long-term responses to elevated CO<sub>2</sub>. *Ecology* **87**, 64-75.

Karlsson, P.E., J. Uddling, S. Braun, M. Broadmeadow, S. Elvira, B.S. Gimeno, D. Le Thiec, E. Oksanen, K. Vandermeiren, M. Wilkinson, and L. Emberson, 2004. New critical levels for ozone effects on young trees based on AOT40 and simulated cumulative leaf uptake of ozone. *Atmospheric Environment*, **38**, 2283-2294.

Kashian, D.M., W.H. Romme, D.B. Tinker, M.G. Turner, and M.G. Ryan, 2006. Carbon storage on landscapes with stand-replacing fires. *BioScience*, **56**, 598-606.

- Kasischke, E.S., and M.R. Turetsky, 2006. Recent changes in the fire regime across the North American boreal region - Spatial and temporal patterns of burning across Canada and Alaska. *Geophysical Research Letters*, **33**, 1-5, L09703, doi:10.1029/2006GL025677, 2006.
- Katz, G.L., and P.B. Shafroth, 2003. Biology, ecology and management of *Elaeagnus angustifolia* L. (Russian olive) in western North America. *Wetlands* **23**, 763-777.
- Keeley, J.E., and C.J. Fotheringham, 2001. Historic fire regime in Southern California shrublands. *Conservation Biology*, **15**, 1536-1548.
- Keeley, J.E., C.J. Fotheringham, and M. Morais, 1999. Reexamining fire suppression impacts on brushland fire regimes. *Science*, **284**, 1829-1832.
- Kharin, V.V., F.W. Zwiers, X.B. Zhang, and G.C. Hegerl, 2007. Changes in temperature and precipitation extremes in the IPCC ensemble of global coupled model simulations. *Journal of Climate*, **20**, 1419-1444.
- King, J.S., P.J. Hanson, E. Bernhardt, P. DeAngelis, R.J. Norby, and K.S. Pregitzer, 2004. A multiyear synthesis of soil respiration responses to elevated atmospheric CO<sub>2</sub> from four forest FACE experiments. *Global Change Biology*, **10**, 1027-1042.
- Kirschbaum, M.U.F., 2004. Soil respiration under prolonged soil warming: are rate reductions caused by acclimation or substrate loss? *Global Change Biology*, **10**, 1870-1877.
- Kirschbaum, M.U.F., 2005. A modeling analysis of the interaction between forest age and forest responsiveness to increasing CO<sub>2</sub> concentration. *Tree Physiology*, **25**, 953-963.
- Kirschbaum, M.U.F., 2006. Temporary carbon sequestration cannot prevent climate change. *Mitigation and Adaptation Strategies for Global Change*, **11**, 1151-1164.
- Kitzberger, T., P.M. Brown, E.K. Heyerdahl, T.W. Swetnam, and T.T. Veblen, 2007. Contingent Pacific-Atlantic Ocean influence on multi-century wildfire synchrony over western North America. *Proceedings National Academy of Science*, **104**, 543-548.
- Knapp, A.K., and M.D. Smith, 2001. Variation among biomes in temporal dynamics of aboveground primary production. *Science*, **291**, 481-484.
- Knapp, A.K., P.A. Fay, J.M. Blair, S.L. Collins, M.D. Smith, J.D. Carlisle, C.W. Harper, B.T. Danner, M.S. Lett, and J.K. McCarron, 2002. Rainfall variability, carbon cycling, and plant species diversity in a mesic grassland. *Science*, **298**, 2202-2205.
- Knapp, P.A., 1995. Intermountain West lightning-caused fires - climatic predictors of area burned. *Journal of Range Management*, **48**, 85-91.
- Knapp, P.A., 1996. Cheatgrass (*Bromus tectorum* L) dominance in the Great Basin Desert. *Global Environmental Change*, **6**, 37-52.

Knapp, P.A., 1998. Spatio-temporal patterns of large grassland fires in the Intermountain West, USA. *Global Ecology and Biogeography Letters*, **7**, 259-272.

Knochenmus, L., J. Wilson, R. Lacznik, D. Sweetkind, J. Thomas, L. Justet and R. Hershey, 2007. Ground-water conditions, Pages 58-61. In: A. Welch and D. Bright (eds.). *Water resources of the Basin and Range carbonate aquifer system in White Pine County, Nevada, and adjacent areas in Nevada and Utah*. U.S. Geological Survey Open-File Report 2007-1156.

Koch, F.H., H.M. Cheshire, and H.A. Devine, 2006. Landscape-scale prediction of hemlock woolly adelgid, *Adelges tsugae* (Homoptera : Adelgidae), infestation in the southern Appalachian Mountains. *Environmental Entomology*, **35**, 1313-1323.

Koricheva, J., S. Larsson, and E. Haukioja, 1998. Insect performance on experimentally stressed woody plants: A meta-analysis. *Annual Review of Entomology*, **43**, 195-216.

Körner, C. 2000, Biosphere responses to CO<sub>2</sub> enrichment. *Ecological Applications*, **10**, 1590-1619.

Körner, C. 2006, Plant CO<sub>2</sub> responses: an issue of definition, time and resource supply. *New Phytologist*, **172**, 393-411.

Körner, C., R. Asshoff, O. Bignucolo, S. Hättenschwiler, S.G. Keel, S. Pelaez-Riedl, S. Pepin, R.T.W. Siegwolf, and G. Zotz, 2005. Carbon flux and growth in mature deciduous forest trees exposed to elevated CO<sub>2</sub>. *Science*, **309**, 1360-1362.

Krieger, D.J. 2001. The economic value of forest ecosystem services: a review. The Wilderness Society, Washington, DC.

Kruger, E.L., J.C. Volin, and R.L. Lindroth, 1998. Influences of atmospheric CO<sub>2</sub> enrichment on the responses of sugar maple and trembling aspen to defoliation. *New Phytologist*, **140**, 85-94.

Kulakowski, D., and T.T. Veblen, In Press. Effect of prior disturbances in the extent and severity of a 2002 wildfire in Colorado subalpine forests. *Ecology*.

Kupfer, J.A., and J.D. Miller, 2005. Wildfire effects and post-fire responses of an invasive mesquite population: the interactive importance of grazing and non-native herbaceous species invasion. *Journal of Biogeography*, **32**, 453-466.

Kurc, S.A., and E.E. Small, 2004. Dynamics of evapotranspiration in semiarid grassland and shrubland during the summer monsoon season, central New Mexico. *Water Resources Research*, **40**:W09305, doi: 09310.01029/02004WR003068.

Kurc S.A., E.E. Small, 2007. Soil moisture variations and ecosystem-scale fluxes of water and carbon in semiarid grassland and shrubland. *Water Resources Research*, **43**, W06416.

- Lal, R. 2001. Potential of desertification control to sequester carbon and mitigate the greenhouse effect. *Climatic Change*, **51**, 35-72.
- Kurz, W.A., and M.J. Apps, 1999. A 70-year retrospective analysis of carbon fluxes in the canadian forest sector. *Ecological Applications*, **9**, 526-547.
- Lane, L.J., and M.R. Kidwell, 2003. Hydrology and soil erosion. Pages 92-100 *In: Santa Rita Experimental Range: 100 years (1903 to 2003) of accomplishments and contributions*. Proc. RMRS-P-30, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Ogden, UT, Tucson, AZ.
- Lavee, H., A.C. Imeson, and P. Sarah, 1998. The impact of climate change on geomorphology and desertification along a Mediterranean-arid transect. *Land Degradation and Development*, **9**, 407-422.
- Leathers, C.R., 1981. Plant components of desert dust in Arizona and their significance for man. Pages 191-206 *In: T. L. Péwé, (ed), Desert Dust: Origin, Characteristics, and Effect on Man*. Geological Society of America, Boulder, Colorado.
- Leith, H., 1975. Modelling the primary productivity of the world. Pages 237-263 *In: H. Leith and R. H. Whittaker, (eds), Primary productivity of the biosphere*. Springer-Verlag, New York.
- Lichter, J., S.H. Barron, C.E. Bevacqua, A.C. Finzli, K.E. Irving, E.A. Stemmler, and W.H. Schlesinger, 2005. Soil carbon sequestration and turnover in a pine forest after six years of atmospheric CO<sub>2</sub> enrichment. *Ecology*, **86**, 1835-1847.
- Loehle, C. and D.C. LeBlanc, 1996. Model-Based Assessments of Climate Change Effects on Forests: A Critical Review. *Ecological Modelling*, **90**, 1-31.
- Logan, J.A., and J.A. Powell, 2001. Ghost forests, global warming and the mountain pine beetle (Coleoptera: Scolytidae). *American Entomologist*, **47**, 160-173.
- Logan, J.A., J. Regniere, and J.A. Powell, 2003b. Assessing the impacts of global warming on forest pest dynamics. *Frontiers in Ecology and the Environment*, **1**, 130-137.
- Logan, J., J. Regniere, and J.A. Powell, 2003a. Assessing the impacts of global warming on forest pest dynamics. *Frontiers in Ecology and the Environment*, **1**, 130-137.
- Loik, M.E., T.E. Huxman, E.P. Hamerlynck, and S.D. Smith, 2000. Low temperature tolerance and cold acclimation for seedlings of three Mojave Desert Yucca species exposed to elevated CO<sub>2</sub>. *Journal of Arid Environments*, **46**, 43-56.
- Long, S.P., 1991. Modification of the response of photosynthetic productivity to rising temperature by atmospheric CO<sub>2</sub> concentrations: has its importance been underestimated? *Plant, Cell, and Environment*, **14**, 729-740.

- Luk, S.H., A.D. Abrahams, and A.J. Parsons, 1993. Sediment sources and sediment transport by rill flow and interrill flow on a semiarid piedmont slope, southern Arizona. *Catena*, **20**, 93-111.
- Luo, Y.Q., D.F. Hui, and D.Q. Zhang, 2006. Elevated CO<sub>2</sub> stimulates net accumulations of carbon and nitrogen in land ecosystems: A meta-analysis. *Ecology*, **87**, 53-63.
- Luo, Y., B. Su, W.S. Currie, J.S. Dukes, A. Finzi, U. Hartwig, B. Hungate, R.E. McMurtrie, R. Oren, W.J. Parton, D.E. Pataki, M.R. Shaw, D.R. Zak, and C.B. Field, 2004. Progressive nitrogen limitation of ecosystem responses to rising atmospheric carbon dioxide. *BioScience*, **54**, 731-739.
- Lynch, H.J., R.A. Renkin, R.L. Crabtree, and P.R. Moorcroft, 2006. The influence of previous mountain pine beetle (*Dendroctonus ponderosae*) activity on the 1988 Yellowstone fires. *Ecosystems*, **9**, 1318-1327.
- MacMahon, J., and F. Wagner, 1985. The Mojave, Sonoran and Chihuahuan Deserts of North America. In: Noy-Meir, I., Evanari, M., Goodall, D.W. (eds.), *Hot Deserts and Arid Shrublands. Ecosystems of the World*, **12A**, Elsevier.
- Magill, A.H., J.D. Aber, W.S. Currie, K.J. Nadelhoffer, M.E. Martin, W.H. McDowell, J.M. Melillo, and P. Steudler, 2004. Ecosystem response to 15 years of chronic nitrogen additions at the Harvard Forest LTER, Massachusetts, USA. *Forest Ecology and Management*, **196**, 7-28.
- Magnani, F., M. Mencuccini, M. Borghetti, P. Berbigier, F. Berninger, S. Delzon, A. Grelle, P. Hari, P.G. Jarvis, P. Kolari, A.S. Kowalski, H. Lankreijer, B.E. Law, A. Lindroth, D. Loustau, G. Manca, J.B. Moncrieff, M. Rayment, V. Tedeschi, R. Valentini, and J. Grace, 2007. The human footprint in the carbon cycle of temperate and boreal forests. *Nature*, **447**, 848-850.
- Maier, C.A., T.J. Albaugh, H.L. Allen, and P.M. Dougherty, 2004. Respiratory carbon use and carbon storage in mid-rotation loblolly pine (*Pinus taeda* L.) plantations: The effect of site resources on the stand carbon balance. *Global Change Biology*, **10**, 1335-1350.
- Malmström, C.M., and K.F. Raffa, 2000. Biotic disturbance agents in the boreal forest: considerations for vegetation change models. *Global Change Biology*, **6**, 35-48.
- Matyssek, R., and H. Sandermann, 2003. Impact of ozone on trees: an ecophysiological perspective. Pages 349-404 In: K. Esser, U. Lüttge, W. Beyschlag, and F. Hellwig, (eds), *Progress in Botany*, Vol. **64**. Springer-Verlag, Heidelberg, Germany.
- Mau-Crimmins, T., H.R. Schussman, H.R., Geiger, E.L., 2006. Can the invaded range of a species be predicted sufficiently using only native-range data?: Lehmann lovegrass (*Eragrostis lehmanniana*) in the southwestern United States. *Ecological Modelling*, **193**, 736-746.
- May, R.M., 1977. Thresholds and breakpoints in ecosystems with a multiplicity of stable states. *Nature*, **269**, 471-477.

- McAuliffe, J.R., 2003. The interface between precipitation and vegetation: the importance of soils in arid and semiarid environments. Pages 9-27 *In*: J.F. Weltzin, McPherson, GR., (eds). *Changing Precipitation Regimes and Terrestrial Ecosystems*. University of Arizona Press, Tucson, AZ, USA.
- McAuliffe, J.R., L.A. Scuderi, and L.D. McFadden, 2006. Tree-ring record of hill slope erosion and valley floor dynamics: Landscape responses to climate variation during the last 400 years in the Colorado Plateau, northeastern Arizona. *Global and Planetary Change*, **50**, 184-201.
- McCarthy, H.R., R. Oren, A.C. Finzi, and K.H. Johnsen, 2006a. Canopy leaf area constrains [CO<sub>2</sub>]-induced enhancement of productivity and partitioning among aboveground carbon pools. *Proceedings of the National Academy of Sciences of the United States of America*, **103**, 19356-19361.
- McCarthy, H.R., R. Oren, H.S. Kim, K.H. Johnsen, C. Maier, S.G. Pritchard, and M.A. Davis, 2006b. Interaction of ice storms and management practices on current carbon sequestration in forests with potential mitigation under future CO<sub>2</sub> atmosphere. *Journal of Geophysical Research-Atmospheres*, **111**, 1-10, D15103, doi:10.1029/2005JD006428, 2006.
- McClaran, M.P., 2003. A century of vegetation change on the Santa Rita Experimental Range. Pages 16-33 *In*: Santa Rita Experimental Range: 100 years (1903 to 2003) of accomplishments and contributions. Proc. RMRS-P-30, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Ogden, UT, Tucson, AZ.
- McKeen, S.A., G. Wotawa, D.D. Parrish, J.S. Holloway, M.P. Buhr, G. Hubler, F.C. Fehsenfeld, and J.F. Meagher, 2002. Ozone production from Canadian wildfires during June and July of 1995. *Journal of Geophysical Research-Atmospheres*, **107**.
- McMurtrie, R.E., B.E. Medlyn, and R.C. Dewar, 2001. Increased understanding of nutrient immobilization in soil organic matter is critical for predicting the carbon sink strength of forest ecosystems over the next 100 years. *Tree Physiology*, **21**, 831-839.
- McNulty, S.G., 2002. Hurricane impacts on U.S. forest carbon sequestration. *Environmental Pollution*, **11**, S17-S24.
- Melillo, J.M., P.A. Steudler, J.D. Aber, K. Newkirk, H. Lux, F.P. Bowles, C. Catricala, A. Magill, T. Ahrens, and S. Morrisseau, 2002. Soil warming and carbon-cycle feedbacks to the climate system. *Science*, **298**, 2173-2176.
- Menzel, A., and P. Fabian, 1999. Growing season extended in Europe. *Nature*, **397**, 659-659.
- Millennium-Ecosystem-Assessment. 2005. *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.

- Miller, N.L., and N.J. Schlegel, 2006. Climate change projected fire weather sensitivity: California Santa Ana wind occurrence. *Geophysical Research Letters*, **33**, 1-5, L15711, doi:10.1029/2006GL025808, 2006.
- Miller, R.F., and J.A. Rose, 1999. Fire history and western juniper encroachment in sagebrush steppe. *Journal of Range Management*, **52**, 550-559.
- Miller, R.F., J.D. Bates, T.J. Svejcar, F.B. Pierson, and L.E. Eddleman, 2005. *Biology, ecology and management of western juniper*. Technical Bulletin 152, Agricultural Experiment Station, Oregon State University.
- Miller, S.D., 2003. A consolidated technique for enhancing desert dust storms with MODIS., **30**, 12.11-12.14.
- Milly, P.C. D., K.A. Dunne, and A.V. Vecchia, 2005. Global pattern of trends in streamflow and water availability in a changing climate. *Nature*, **438**, 347-350.
- Miriti, M.N., 2007. Twenty years of changes in spatial association and community structure among desert perennials. *Ecology*, **88**, 1177-1190.
- Monger, H.C., and J.J. Martinez-Rios, 2000. Inorganic carbon sequestration in grazing lands. Pages 87-118 *In*: R. Follett, J. Kimble, and R. Lal, editors. *The Potential of U.S. Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect*. Lewis Publishers, Boca Raton, Florida.
- Morris, G.A., S. Hersey, A.M. Thompson, S. Pawson, J.E. Nielsen, P.R. Colarco, W.W. McMillan, A. Stohl, S. Turquety, J. Warner, B.J. Johnson, T.L. Kucsera, D.E. Larko, S.J. Oltmans, and J.C. Witte, 2006. Alaskan and Canadian forest fires exacerbate ozone pollution over Houston, Texas, on 19 and 20 July 2004. *Journal of Geophysical Research-Atmospheres*, **111**, 1-10, D24S03, doi:10.1029/2006JD007090, 2006.
- Morgan, J.A., D.G. Milchunas, D.R. LeCain, M. West, and A.R. Mosier, 2007. Carbon dioxide enrichment alters plant community structure and accelerates shrub growth in the shortgrass steppe. *Proceedings of the National Academy of Sciences*, **104**, 14724-14729.
- Mote, P.W., A.F. Hamlet, M.P. Clark, and D.P. Lettenmaier, 2005. Declining mountain snowpack in western North America. *Bulletin of the American Meteorological Society*, **86**, 39-49.
- Murray, B.C., B.A. McCarl, and Heng-Chi Lee, 2004. Estimating Leakage from Forest Carbon Sequestration Programs. *Land Economics*, **80**, 109-124.
- Mueller, R.C., C.M. Scudder, M.E. Porter, R.T. Trotter, C.A. Gehring, and T.G. Whitham, 2005. Differential tree mortality in response to severe drought: evidence for long-term vegetation shifts. *Journal of Ecology*, **93**, 1085-1093.
- Nagel, J.M., T.E. Huxman, K.L. Griffin, and S.D. Smith, 2004. CO<sub>2</sub> enrichment reduces the energetic cost of biomass construction in an invasive desert grass. *Ecology*, **85**, 100-106.

NASA-Office-of-Earth-Science, 2004. *Earth science applications plan*. NASA, Washington, D.C.

National-Ecological-Observatory-Network, 2006. *Integrated science and education plan for the National Ecological Observatory Network*. Available at: <http://www.neoninc.org/> NEON, Inc., Washington, DC.

Neilson, R.P., 1986. High resolution climatic analysis and southwest biogeography. *Science*, **232**, 27-34.

Nelson, A., 1992. Characterizing exurbia. *Journal of Planning Literature*, **6**, 350-368.

Nettleton, W.D., and M.D. Mays, 2007. Estimated Holocene soil carbon-soil degradation in Nevada and western Utah, USA. *Catena*, **69**, 220-229.

Newman, B.D., B.P. Wilcox, S.R. Archer, D.D. Breshears, C.N. Dahm, C.J. Duffy, N.G. McDowell, F.M. Phillips, B.R. Scanlon, and E.R. Vivoni, 2006. Ecohydrology of water-limited environments: a scientific vision. *Water Resources Research*, **42**, W06302, doi:06310.01029/02005WR004141.

Norby, R.J., E.H. DeLucia, B. Gielen, C. Calfapietra, C. P. Giardina, J.S. King, J. Ledford, H.R. McCarthy, D.J. P. Moore, R. Ceulemans, P. De Angelis, A.C. Finzi, D.F. Karnosky, M.E. Kubiske, M. Lukac, K.S. Pregitzer, G.E. Scarascia-Mugnozza, W.H. Schlesinger, and R. Oren, 2005. Forest response to elevated CO<sub>2</sub> is conserved across a broad range of productivity. *Proceedings of the National Academy of Sciences of the United States of America*, **102**, 18052-18056.

Norby, R.J., J. Ledford, C.D. Reilly, N.E. Miller, and E.G. O'Neill, 2004. Fine-root production dominates response of a deciduous forest to atmospheric CO<sub>2</sub> enrichment. *Proceedings of the National Academy of Sciences of the United States of America*, **101**, 9689-9693.

Novak, S.J., and R.N. Mack, 2001. Tracing plant introduction and spread: Genetic evidence from *Bromus tectorum* (Cheatgrass). *BioScience*, **51**, 114-122.

NWRC. 2007. Northwest Watershed Research Center (NWRC) and the Reynolds Creek Experimental Watershed (RCEW) USDA-ARS NW Watershed Research, 800 Park Blvd. Plaza IV, S 105 Boise, ID 83712. <http://www.nwrc.ars.usda.gov/>

Okin, G.S., D.A. Gillette, and J.E. Herrick, 2006. Multi-scale controls on and consequences of aeolian processes in landscape change in arid and semi-arid environments. *Journal of Arid Environments*, **65**, 253-275.

Okin, G.S., and M.C. Reheis, 2002. An ENSO predictor of dust emission in the southwestern United States. *Geophysical Research Letters*, **29**, 46.41-46.43.

Okin, G.S., J.E. Herrick, and D.A. Gillette, 2006. Multi-scale controls on and consequences of aeolian processes in landscape change in arid and semiarid environments. *Journal of Arid Environments*, **65**, 253-275.

Olson, D.M., E. Dinerstein, E.D. Wikramanayake, N.D. Burgess, G.V.N. Powell, E.C. Underwood, J.A. D'Amico, H.E.S. I. Itoua, J.C. Morrison, C.J. Loucks, T.F. Allnutt, T.H. Ricketts, Y. Kura, J.F. Lamoreux, W.W. Wettengel, P. Hedao, and K.R. Kassem, 2001. Terrestrial ecoregions of the world: a new map of life on Earth. *BioScience*, **51**, 933-938.

Onken, B., and R. Reardon (compilers), 2005. Third Symposium on Hemlock Woolly Adelgid in the Eastern United States. USDA Forest Service Forest Health Technology Enterprise Team, FHTET-2005-01, Morgantown, WV.  
[http://na.fs.fed.us/fhp/hwa/pub/2005\\_proceedings/index.shtm](http://na.fs.fed.us/fhp/hwa/pub/2005_proceedings/index.shtm)

Oren, R., D.S. Ellsworth, K.H. Johnsen, N. Phillips, B.E. Ewers, C. Maier, K.V.R. Schafer, H. McCarthy, G. Hendrey, S.G. McNulty, and G.G. Katul, 2001. Soil fertility limits carbon sequestration by forest ecosystems in a CO<sub>2</sub>-enriched atmosphere. *Nature*, **411**, 469-472.

Orwig, D.A., D.R. Foster, and D.L. Mausel, 2002. Landscape patterns of hemlock decline in New England due to the introduced hemlock woolly adelgid. *Journal of Biogeography*, **29**, 1475-1487.

Overpeck, T., D. Rind, and R. Goldberg, 1990. Climate-induced changes in forest disturbance and vegetation. *Nature*, **343**, 51-53.

Owens, M.K., and G.W. Moore, 2007. Saltcedar water use: realistic and unrealistic expectations. *Rangeland Ecology and Management*, **60**, 553-557.

Owensby, C.E., P.I. Coyne, J.M. Hamm, L.M. Auen, and A.K. Knapp. 1993. Biomass production in a tallgrass prairie ecosystem exposed to ambient and elevated CO<sub>2</sub>. *Ecological Applications*, **3**, 666-681.

Painter, T.H., A.P. Barrett, C. Landry, J. Neff, M.P. Cassidy, C. Lawrence, K.E. McBride, and G.L. Farmer, 2007. Impact of disturbed desert soils on duration of mountain snowcover. *Geophysical Research Letters (In Press)*.

Palmroth, S., R. Oren, H.R. McCarthy, K.H. Johnsen, A.C. Finzi, J.R. Butnor, M.G. Ryan, and W.H. Schlesinger, 2006. Aboveground sink strength in forests controls the allocation of carbon below ground and its [CO<sub>2</sub>] - induced enhancement. *Proceedings of the National Academy of Sciences of the United States of America*, **103**, 19362-19367.

Pan, Y., R. Birdsey, J. Hom, K. McCullough, and K. Clark, 2006. Improved estimates of net primary productivity from MODIS satellite data at regional and local scales. *Ecological Applications*, **16**, 125-132.

Parker, B. L., M. Skinner, S. Gouli, T. Ashikaga, and H.B. Teillon, 1999. Low lethal temperature for hemlock woolly adelgid (Homoptera : Adelgidae). *Environmental Entomology*, **28**, 1085-1091.

Parmesan, C., and G. Yohe, 2003. A globally coherent fingerprint of climate change impacts across natural systems. *Nature*, **421**, 37-42.

Parsons, A.J., A.D. Abrahams, and J. Wainwright, 1994. Rainsplash and erosion rates in an interrill area on semiarid grassland, southern Arizona. *Catena*, **22**, 215-226.

Parsons, A.J., A.D. Abrahams, and J. Wainwright, 1996. Responses of interrill runoff and erosion rates to vegetation change in southern Arizona. *Geomorphology*, **14**, 311-317.

Parsons, A.J., A.D. Abrahams, and S.H. Luk, 1991. Size characteristics of sediment in inter-rill overland-flow on a semiarid hill slope, southern Arizona. *Earth Surface Processes and Landforms*, **16**, 143-152.

Patrick L., J. Cable, D. Potts, D. Ignace, G. Barron-Gafford, A. Griffith, H. Alpert, N. Van Gestel, T. Robertson, T.E. Huxman, J. Zak, M.E. Loik, D. Tissue, 2007. Effects of an increase in summer precipitation on leaf, soil and ecosystem fluxes of CO<sub>2</sub> and H<sub>2</sub>O in a stool grassland in Big Bend National Park, Texas. *Oecologia*, **151**, 704-718.

Penuelas, J., and I. Filella, 2001. Phenology - Responses to a warming world. *Science*, **294**, 793-795.

Pereira, J.S., J.A. Mateus, L.M. Aires, G. Pita, C. Pio, J.S. David, V. Andrade, J. Banza, T.S. David, T.A. Paco, A. Rodrigues, 2007. Net ecosystem exchange in three contrasting Mediterranean ecosystems – the effect of drought. *Biogeosciences*, **4**, 791-802.

Peters, R., 1992. Conservation of biological diversity in the face of climate change. Pages 3-30 In: P. RL and T. Lovejoy, (eds), *Global Warming and Biological Diversity*. Yale University Press, New Haven, CT, USA.

Pfister, G.G., L.K. Emmons, P.G. Hess, R. Honrath, J.F. Lamarque, M.V. Martin, R.C. Owen, M.A. Avery, E.V. Browell, J.S. Holloway, P. Nedelec, R. Purvis, T.B. Ryerson, G.W. Sachse, and H. Schlager, 2006. Ozone production from the 2004 North American boreal fires. *Journal of Geophysical Research-Atmospheres*, **111**, 1-13, D24S07, doi:10.1029/2006JD007695, 2006.

Phillips, N., and R. Oren, 2001. Intra- and inter-annual variation in transpiration of a pine forest. *Ecological Applications*, **11**, 385-396.

Pierce, J.L., G.A. Meyer, and A.J.T. Jull, 2004. Fire-induced erosion and millennial scale climate change in northern ponderosa pine forests. *Nature*, **432**, 87-90.

Piketh, S.J., P.D. Tyson, and W. Steffen, 2000. Aeolian transport from southern Africa and iron fertilization of marine biota in the South Indian Ocean. *South African Journal of Geology*, **96**, 244-246.

Plume, R.W. and S.M. Carlton, 1988. Hydrogeology of the Great Basin region of Nevada, Utah, and adjacent states. *U.S. Geological Survey Hydrologic Investigations Atlas HA-694-A*.

Polhemus, D.A. and J.T. Polhemus, 2001. Basin and ranges. The biogeography of aquatic true bugs (Insecta: Hemiptera) in the Great Basin. Pages 235-254. *In*: R. Hershler, D.B. Madsen, and D.R. Currey (eds.). *Great Basin Aquatic Systems History*. Smithsonian Contributions to Earth Sciences, Number 33.

Polley, H.W., H.B. Johnson, and C.R. Tischler, 2003. Woody invasion of grasslands: evidence that CO<sub>2</sub> enrichment indirectly promotes establishment of *Prosopis glandulosa*. *Plant Ecology*, **164**, 85-94.

Polley, H.W., H.S. Mayeux, H.B. Johnson, and C.R. Tischler, 1997. Atmospheric CO<sub>2</sub>, soil water, and shrub/grass ratios on rangelands. *Journal of Range Management*, **50**, 278-284.

Polley, H., H. Johnson, and J. Derner, 2002. Soil- and plant-water dynamics in a C3/C4 grassland exposed to a subambient to superambient CO<sub>2</sub> gradient. *Global Change Biology*, **8**, 1118-1129.

Poorter, H., and M.L. Navas, 2003. Plant growth and competition at elevated CO<sub>2</sub>: on winners, losers and functional groups. *New Phytologist*, **157**, 175-198.

Potts, D.F., 1984. Hydrologic impacts of a large-scale mountain pine beetle (*Dendroctonus ponderosae* Hopkins) epidemic. *Water Resources Bulletin*, **20**, 373-377.

Pregitzer, K.S., A.J. Burton, D.R. Zak, and A.F. Talhelm, 2008. Simulated chronic nitrogen deposition increases carbon storage in northern temperate forests. *Global Change Biology*, **14**, 142-153.

Prieur-Richard, A.H., and S. Lavorel, 2000. Invasions: perspective of diverse plant communities. *Australian Ecology*, **25**, 1-7.

Raich, J.W., and W.H. Schlesinger, 1992. The global carbon dioxide flux in soil respiration and its relationship to vegetation and climate. *Tellus*, **44B**, 81-89.

Randerson, J.T., H. Liu, M.G. Flanner, S.D. Chambers, Y. Jin, P.G. Hess, G. Pfister, M.C. Mack, K.K. Treseder, L.R. Welp, F.S. Chapin, J.W. Harden, M.L. Goulden, E. Lyons, J.C. Neff, E.A.G. Schuur, and C.S. Zender. 2006. The impact of boreal forest fire on climate warming. *Science*, **314**, 1130-1132.

Raphael, M.N. 2003. The Santa Ana winds of California. *Earth Interactions*, **7**, 1-13.

- Raupach, M.R., P.J. Rayner, D.J. Barrett, R.S. DeFries, M. Heimann, D.S. Ojima, S. Quegan, and C.C. Schimmlus, 2005. Model-data synthesis in terrestrial carbon observation: methods, data requirements and data uncertainty specifications. *Global Change Biology*, **11**, 378-397.
- Ravi, S., P. D'Odorico, T.M. Over, and T.M. Zobeck, 2006. On the effect of air humidity on soil susceptibility to wind erosion: the case of air-dry soils. *Geophysical Research Letters*, **31**, Art. No. L09501.
- Regab, R., and C. Prudhomme, 2002. Climate change and water resource management in arid and semi-arid regions: prospective and challenges for the 21<sup>st</sup> century. *Biosystems Engineering*, **81**, 3-34.
- Reheis, M.C. 2006. A 16-year record of eolian dust in Southern Nevada and California, USA: controls on dust generation and accumulation. *Journal of Arid Environments*, **67**, 487-520.
- Reich, P.B., S.E. Hobbie, T. Lee, D.S. Ellsworth, J.B. West, D. Tilman, J.M.H. Knops, S. Naeem, and J. Trost, 2006. Nitrogen limitation constrains sustainability of ecosystem response to CO<sub>2</sub>. *Nature*, **440**, 922-925.
- Reynolds, J.F., D.W. Hilbert, and P.R. Kemp, 1993. Scaling ecophysiology from the plant to the ecosystem: A conceptual framework. Pages 127-140 In: J.R. Ehleringer and C.B. Field, (eds). *Scaling physiological processes: Leaf to globe*. San Diego: Academic Press.
- Richards, K.R., and C. Stokes, 2004. A review of forest carbon sequestration cost studies: a dozen years of research. *Climatic Change*, **63**,1-48.
- Richardson, D.M., P. Pysek, M. Rejmanek, M.G. Barbour, F.D. Panetta, and C.J. West, 2000. Naturalization and invasion of alien plants: concepts and definitions. *Diversity and Distributions*, **6**, 93-107.
- Ries, J.B., and I. Marzloff, 2003. Monitoring of gully erosion in the Central Ebro Basin by large-scale aerial photography taken from a remotely controlled blimp. *Catena*, **50**, 309-328.
- Roden, J.S., G.G. Lin, and J.R. Ehleringer, 2000. A mechanistic model for interpretation of hydrogen and oxygen isotope ratios in tree-ring cellulose. *Geochimica et Cosmochimica Acta*, **64**, 21-35.
- Romme, W.H., J. Clement, J. Hicke, D. Kulakowski, L.H. MacDonald, T.L. Schoennagel, and T.T. Veblen, 2006. Recent Forest Insect Outbreaks and Fire Risk in Colorado Forests: A Brief Synthesis of Relevant Research. Colorado Forest Restoration Institute, Colorado State University.
- Roshier, D.A., P.H. Whetton, R.J. Allan, and A. I. Robertson. 2001. Distribution and persistence of temporary wetland habitats in arid Australia in relation to climate. *Austral Ecology*, **26**, 371-384.

- Ross, R.M., R.M. Bennett, C.D. Snyder, J.A. Young, D.R. Smith, and D.P. Lemarie, 2003. Influence of eastern hemlock (*Tsuga canadensis* L.) on fish community structure and function in headwater streams of the Delaware River basin. *Ecology of Freshwater Fish*, **12**, 60-65.
- Ross, R.M., L.A. Redell, R.M. Bennett, and J.A. Young, 2004. Mesohabitat use of threatened hemlock forests by breeding birds of the Delaware river basin in northeastern United States. *Natural Areas Journal*, **24**, 307-315.
- Rundel, P., and A. Gibson, 1996. *Ecological communities and processes in a Mojave Desert ecosystem: Rock Valley, Nevada*. Cambridge University Press, New York.
- Running, S.W., P.E. Thornton, R. Nemani, and J.M. Glassy, 2000. Global terrestrial gross and net primary productivity from the earth observing system. Pages 44-57 *In*: O.Sala, R. Jackson, and H.Mooney, (eds.), *Methods in Ecosystem Science*. Springer-Verlag, New York.
- Running, S.W., R.R. Nemani, F.A. Heinsch, M.S. Zhao, M. Reeves, and H. Hashimoto, 2004. A continuous satellite-derived measure of global terrestrial primary production. *BioScience*, **54**,547-560.
- Rustad, L.E., J.L. Campbell, G.M. Marion, R.J. Norby, M.J. Mitchell, A.E. Hartley, J.H.C. Cornelissen, and J. Gurevitch, 2001. A meta-analysis of the response of soil respiration, net nitrogen mineralization, and aboveground plant growth to experimental ecosystem warming. *Oecologia*, **126**, 543-562.
- Ryan, M.G.,D. Binkley, J.H. Fownes, C.P. Giardina, and R.S. Senock, 2004. An experimental test of the causes of forest growth decline with stand age. *Ecological Monographs*, **74**, 393-414.
- Ryan, M.G., D. Binkley, and J.H. Fownes, 1997. Age-related decline in forest productivity: pattern and process. *Advances in Ecological Research*, **27**, 213-262.
- Ryan, M.G., S. Linder, J.M. Vose, and R.M. Hubbard, 1994. Dark respiration in pines. Pages 50-63 *In*: H.L. Gholz, S. Linder, and R.E. McMurtrie, (eds). *Ecological Bulletins 43, Environmental constraints on the structure and productivity of pine forest ecosystems: a comparative analysis*. Munksgaard, Uppsala.
- Sada, D.W. and R. Hershler, 2007. *Desert Research Institute Springs Database*. Desert Research Institute, Reno, NV.
- Sada, D. W., and G. L. Vinyard, 2002. Anthropogenic changes in historical biogeography of Great Basin aquatic biota. Pages 277-295 *In*: R. Hershler, D. B. Madsen, and D. Currey, (eds). *Great Basin Aquatic Systems History*. Smithsonian Contributions to the Earth Sciences.
- Sada, D. W., J. E. Williams, J. C. Silvey, A. Halford, J. Ramakka, P. Summers, and L. Lewis, 2001. *Riparian area management: A guide to managing, restoring, and conserving springs in the western United States*. Technical Reference 1737-17, Bureau of Land Management, BLM/ST/ST-01/001+1737, Denver, CO, 70 pp.

Sage, R.F., 1996. Atmospheric modification and vegetation responses to environmental stress. *Global Change Biology*, **2**, 79-83.

Sakai, A., and C.J. Weiser, 1973. Freezing resistance of trees in North-America with reference to tree regions. *Ecology*, **54**, 118-126.

Sala, O.E., F.S. Chapin, J.J. Armesto, E. Berlow, J. Bloomfield, R. Dirzo, E. Huber-Sanwald, L.F. Huenneke, R.B. Jackson, A. Kinzig, R. Leemans, D.M. Lodge, H.A. Mooney, M. Oesterheld, N.L. Poff, M.T. Sykes, B.H. Walker, M. Walker, and D.H. Wall, 2000. Global biodiversity scenarios for the year 2100. *Science*. **287**, 1770-1774.

Sala, A., G. Peters, L. McIntyre, and M. Harrington, 2005. Physiological responses of ponderosa pine in western Montana to thinning, prescribed fire and burning season. *Tree Physiology*, **25**, 339-348.

Salo, L.F., 2005. Red brome (*Bromus rubens* subsp. *madritensis*) in North America: possible modes for early introductions, subsequent spread. *Biological Invasions*, **7**, 165-180.

Salo, L.F., G.R. McPherson, and D.G. Williams, 2005. Sonoran desert winter annuals affected by density of red brome and soil nitrogen. *American Midland Naturalist*, **153**, 95-109.

Saxe, H., M.G.R. Cannell, Ø. Johnsen, M.G. Ryan, and G. Vourlitis, 2001. Tree and forest functioning in response to global warming. *New Phytologist*, **149**, 369-399.

Scanlon, B.R., D.G. Levitt, R.C. Reedy, K.E. Keese, and M.J. Sully, 2005. Ecological controls on water-cycle response to climate variability in deserts. *Proceedings National Academy of Science*, **102**, 6033-6038.

Schäfer, K.V.R., R. Oren, D.S. Ellsworth, C.T. Lai, J.D. Herrick, A.C. Finzi, D.D. Richter, and G.G. Katul, 2003. Exposure to an enriched CO<sub>2</sub> atmosphere alters carbon assimilation and allocation in a pine forest ecosystem. *Global Change Biology*, **9**, 1378-1400.

Schlesinger, W.H., 1977. Carbon balance in terrestrial detritus. *Annual Review of Ecology and Systematics*, **8**, 51-81.

Schlesinger, W.H., 1982. Carbon storage in the caliche of arid soils: A case study from Arizona. *Soil Science*, **133**, 247-255.

Schlesinger, W.H. 1985. The formation of caliche in soils of the Mojave Desert, California. *Geochimica et Cosmochimica Acta* 49: 57-66.

Schlesinger, W.H. 1990. Evidence from chronosequence studies for a low carbon-storage potential of soils. *Nature* 348: 232-234.

Schlesinger, W.H. 2001. Carbon sequestration in soils: Some cautions amidst optimism. *Agriculture, Ecosystems and Environment* 82: 121-127.

- Schlesinger, W.H., 2000. Carbon sequestration in soils: some cautions amidst optimism. *Agriculture, Ecosystems & Environment*, **82**,121-127.
- Schlesinger, W.H., and C.S. Jones, 1984. The comparative importance of overland runoff and mean annual rainfall to shrub communities of the Mojave Desert. *Botanical Gazette*, **145**, 116-124.
- Schlesinger, W.H., and A.M. Pilmanis, 1998. Plant-soil interactions in deserts. *Biogeochemistry*, **42**,169-187.
- Schlesinger, W.H., and J.Lichter, 2001. Limited carbon storage in soil and litter of experimental forest plots under increased atmospheric CO<sub>2</sub>. *Nature*, **411**, 466-469.
- Schlesinger, W.H., J.A. Raikes, A.E. Hartley, and A.E. Cross, 1996. On the spatial pattern of soil nutrients in desert ecosystems. *Ecology*, **77**, 364-374.
- Schlesinger, W.H., J.F. Reynolds, G.L. Cunningham, L.F. Huenneke, W.M. Jarrell, R.A. Virginia, and W.G. Whitford, 1990. Biological feedbacks in global desertification. *Science*, **247**, 1043-1048.
- Schlesinger, W.H., S.L. Tartowski, and S.M. Schmidt, 2006. Nutrient cycling within an arid ecosystem. Pages 133-149 *In*: K.M. Havstad, L.F. Huenneke and W.H. Schlesinger, (eds.), *Structure and Function of a Chihuahuan Desert Ecosystem: The Jornada Basin LTER*. Oxford University Press, Oxford.
- Schmidting, R.C., 1994. Use of provenance tests to predict response to climatic-change - Loblolly-pine and Norway spruce. *Tree Physiology*, **14**, 805-817.
- Schreuder, H.T., and C.E. Thomas., 1991. Establishing cause-effect relationships using forest survey data. *Forest Science*, **37**, 1497-1512.
- Schutzenhofer, M.R., and T.J. Valone, 2006. Positive and negative effects of exotic *Erodium cicutarium* on an arid ecosystem. *Biological Conservation*, **132**, 376-381.
- Schwartz, M.D., R. Ahas, and A. Aasa, 2006. Onset of spring starting earlier across the Northern Hemisphere. *Global Change Biology*, **12**, 343-351.
- Scott, R.L., T.E. Huxman, D.G. Williams, and D.C. Goodrich, 2006. Ecohydrological impacts of woody plant encroachment: seasonal patterns of water and carbon dioxide exchange within a semiarid riparian environment. *Global Change Biology*, **12**, 311-324.
- Seager, R., M. Ting, I. Held, Y. Kushnir, J. Lu, G. Vecchi, H.P. Huang, N. Harnik, A. Leetmaa, N.C. Lau, C. Li, J. Velez, and N. Naik, 2007. Model projections of an imminent transition to a more arid climate in Southwestern North America. *Science*, **316**, 1181-1184.

- Sharkey, T.D., and S.S. Yeh, 2001. Isoprene emission from plants. *Annual Review of Plant Physiology and Plant Molecular Biology*, **52**, 407-436.
- Shore, T.L., B.G. Riel, L. Safranyik, and A. Fall, 2006. Decision support systems. Pages 193-230 *In: L. Safranyik and W.R. Wilson, (eds.), The mountain pine beetle: a synthesis of biology, management, and impacts on lodgepole pine*. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia.
- Sims, D.A., A.F. Rahman, B.Z. El Masri, D.D. Baldocchi, L.B. Flanagan, A.H. Goldstein, D.Y. Hollinger, L. Mission, R.K. Monson, W.C. Oechel, H.P. Schmid, and L. Xu, 2006. On the use of MODIS EVI to assess gross primary productivity of North American ecosystems. *Journal of Geophysical Research*, **111**,G04015, doi:04010.01029/02006JG000162.
- Skinner, M., B. L. Parker, S. Gouli, and T. Ashikaga, 2003. Regional responses of hemlock woolly adelgid (Homoptera : Adelgidae) to low temperatures. *Environmental Entomology*, **32**, 523-528.
- Small, M.J., C.J. Small, and G.D. Dreyer, 2005. Changes in a hemlock-dominated forest following woolly adelgid infestation in southern New England. *Journal of the Torrey Botanical Society*, **132**, 458-470.
- Smith, E. 1999, Atlantic and east coast hurricanes 1900-98: A frequency and intensity study for the twenty-first century. *Bulletin of the American Meteorological Society*, **80**, 2717-2720.
- Smith, P., 2004. How long before a change in soil organic carbon can be detected? *Global Change Biology*, **10**, 1878-1883.
- Smith, S.D., T.E. Huxman, S.F. Zitzer, T.M. Charlet, D.C. Housman, J.S. Coleman, L.K. Fenstermaker, J.R. Seemann, and R.S. Nowak, 2000. Elevated CO<sub>2</sub> increases productivity and invasive species success in an arid ecosystem. *Nature*, **408**, 79-82.
- Snyder, C.D., J.A. Young, D.P. Lemarie, and D.R. Smith, 2002. Influence of eastern hemlock (*Tsuga canadensis*) forests on aquatic invertebrate assemblages in headwater streams. *Canadian Journal of Fisheries and Aquatic Sciences*, **59**, 262-275.
- Sokolik, I.N., and O.B. Toon, 1996. Direct radiative forcing by anthropogenic airborne mineral aerosols. *Nature*, **381**, 681-683.
- Souto, D., T. Luther, B. Chianese, 1996, Past and current status of HWA in eastern and Carolina hemlock stands. *In: Salom, S.M., Tignor, T.C., Reardon, R.C. (Eds.), Proceedings of the First Hemlock Woolly Adelgid Review, USDA Forest Service, Morgantown, WV, pp. 9-15.*  
<http://www.na.fs.fed.us/fhp/hwa/maps/hwaprojectedspreadmap.htm>
- Stadler, B., T. Muller, and D. Orwig, 2006. The ecology of energy and nutrient fluxes in hemlock forests invaded by hemlock woolly adelgid. *Ecology*, **87**, 1792-1804.

Stadler, B., T. Muller, D. Orwig, and R. Cobb, 2005. Hemlock woolly adelgid in new england forests: Canopy impacts transforming ecosystem processes and landscapes. *Ecosystems*, **8**, 233-247.

Stanturf, J.A., S.L. Goodrick, and K.W. Outcalt, 2007. Disturbance and coastal forests: A strategic approach to forest management in hurricane impact zones. *Forest Ecology and Management*. (In Press)

Stednick, J.D., 1996. Monitoring the effects of timber harvest on annual water yield. *Journal of Hydrology*, **176**, 79-95.

Stewart, I.T., D.R. Cayan, and M.D. Dettinger, 2004. Changes in snowmelt timing in western North America under a 'business as usual' climate change scenario. *Climate Change*, **62**, 217-232.

Stohlgren, T.J., D. Binkley, G.W. Chong, M.A. Kalkhan, L.D. Schell, K.A. Bull, Y. Otsuki, G. Newman, M. Bashkin, and Y. Son, 1999. Exotic plant species invade hot spots of native plant diversity. *Ecological Monographs*, **69**, 25-46.

Stohlgren, T.J., K.A. Bull, Y. Otsuki, C.A. Villa, and M. Lee, 1998. Riparian zones as havens for exotic plant species in the central grasslands. *Plant Ecology*, **138**, 113-125.

Stoy, P.C., G. G. Katul, M. B. S. Siqueira, J. Y. Juang, K. A. Novick, J. M. Uebelherr, and R. Oren. 2006. An evaluation of models for partitioning eddy covariance-measured net ecosystem exchange into photosynthesis and respiration. *Agricultural and Forest Meteorology*, **141**, 2-18.

Stromberg, J.C., R. Tiller, and B. Richter, 1996. Effects of groundwater decline on riparian vegetation of semiarid regions: the San Pedro, Arizona. *Ecological Applications*, **6**, 13-131.

Sullivan, K.A., and A.M. Ellison, 2006. The seed bank of hemlock forests: implications for forest regeneration following hemlock decline. *Journal of the Torrey Botanical Society*, **133**, 393-402.

Svejcar, T., J. Bates, R. Angell, and R. Miller, 2003. The influence of precipitation timing on the sagebrush steppe ecosystem. In: J. F. Weltzin and G. R. McPherson, (eds), *Changing Precipitation Regimes and Terrestrial Ecosystems: A North American Perspective*. University of Arizona Press, Tucson.

Swap, R., M. Garstang, S. Greco, R. Talbot, and P. Kallberg, 1992. Saharan dust in the Amazon Basin. *Tellus Series B-Chemical and Physical Meteorology*, **44**,133-149.

SWRC, 2007. Southwest Watershed Research Center and Walnut Gulch Experimental Watershed. [http://www.ars.usda.gov/SP2UserFiles/Place/53424500/SWRCWGEW\\_2007.pdf](http://www.ars.usda.gov/SP2UserFiles/Place/53424500/SWRCWGEW_2007.pdf) edition. Southwest Watershed Research Center, 2000 E. Allen Road, Tucson, AZ, [http://www.ars.usda.gov/SP2UserFiles/Place/53424500/SWRCWGEW\\_2007.pdf](http://www.ars.usda.gov/SP2UserFiles/Place/53424500/SWRCWGEW_2007.pdf)

- Taylor, D.W., 1985. Evolution of freshwater drainages and mollusks in western North America. Pages 265-321. *In: C.J. Smiley and A.J. Leviton (eds.). Late Cenozoic history of the Pacific Northwest.* American Association for the Advancement of Science, San Francisco.
- Taylor, S.W., A.L. Carroll, R.I. Alfaro, and L. Safranyik, 2006. Forest, climate, and mountain pine beetle outbreak dynamics in western Canada. Pages 67-94 *In: L. Safranyik and W.R. Wilson, (eds.). The mountain pine beetle: a synthesis of biology, management, and impacts on lodgepole pine.* Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia.
- The-Heinz-Center, 2002. *The state of the nation's ecosystems.* Cambridge University Press.
- Thomas, C.D., A.M.A. Franco, and J.K. Hill, 2006. Range retractions and extinction in the face of climate warming. *Trends in Ecology & Evolution*, **21**, 415-416.
- Thomas, J.M., A.H. Welch, and M.D. Dettinger, 1996. *Geochemistry and isotope hydrology of representative aquifers in the Great Basin region of Nevada, Utah, and adjacent states.* U.S. Geological Survey Professional Paper 1409-C.
- Thornton, P.E., H. Hasenauer, and M.A. White, 2000. Simultaneous estimation of daily solar radiation and humidity from observed temperature and precipitation: an application over complex terrain in Austria. *Agricultural and Forest Meteorology*, **104**, 255-271.
- Throop, H.L., E.A. Holland, W.J. Parton, D.S. Ojima, and C.A. Keough, 2004. Effects of nitrogen deposition and insect herbivory on patterns of ecosystem-level carbon and nitrogen dynamics: results from the CENTURY model. *Global Change Biology*, **10**, 1092-1105.
- Thurow, T. L., 1991. Hydrology and erosion. Pages 141-160 *In: R. K. Heitschmidt and J. W. Stuth (eds). Grazing Management: An Ecological Perspective.* Timber Press, Portland, OR.
- Tickner, D.P., P.G. Angold, A.M. Gurnell, and J.O. Mountford, 2001. Riparian plant invasions: hydrogeomorphological control and ecological impacts. *Progress in Physical Geography*, **25**, 22-52.
- Tingley, M.W., D. A. Orwig, and R. Field, 2002. Avian response to removal of a forest dominant: consequences of hemlock woolly adelgid infestations. *Journal of Biogeography*, **29**, 1505-1516.
- Townsend, P.A., K.N. Eshleman, and C. Welcker, 2004. Relationships between stream nitrogen concentrations and intensity of forest disturbance following gypsy moth defoliation in 2000-2001. *Ecological Applications*, **14**, 504-516.
- Tran, J.K., T. Ylioja, R. Billings, J. Régnière, and M.P. Ayres. in press. Testing a climatic model to predict populations dynamics of a forest pest, *Dendroctonus frontalis* (Coleoptera: Scolydidae). *Ecological Applications*.

Tucker, C.J., D.A. Slayback, J.E. Pinzon, S.O. Los, R.B. Myneni, and M.G. Taylor, 2001. Higher northern latitude normalized difference vegetation index and growing season trends from 1982 to 1999. *International Journal of Biometeorology*, **45**, 184-190.

Turetsky, M.R., J.W. Harden, H.R. Friedli, M. Flannigan, N. Payne, J. Crock, and L. Radke, 2006. Wildfires threaten mercury stocks in northern soils. *Geophysical Research Letters*, **33**, 1-6, L16403, doi:10.1029/2005GL025595, 2006.

Turner, D.P., S.V. Ollinger, and J.S. Kimball, 2004. Integrating remote sensing and ecosystem process models for landscape- to regional-scale analysis of the carbon cycle. *BioScience*, **54**, 573-584.

Turner, M.G., W.H. Romme, and R.H. Gardner, 1999. Prefire heterogeneity, fire severity, and early postfire plant reestablishment in subalpine forests of Yellowstone National Park, Wyoming. *International Journal of Wildland Fire*, **9**, 21-36.

Turner, R.M., J.E. Bowers, and T.L. Burgess, 1995. *Sonoran Desert Plants: An Ecological Atlas*. University of Arizona Press, Tucson.

Ungerer, M.J., M.P. Ayres, and M.A.J. Lombardero, 1999. Climate and the northern distribution limits of *Dendroctonus frontalis* Zimmermann (Coleoptera:Scolytidae). *Journal of Biogeography*, **26**, 1133-1145.

United States- Department of Agriculture, 2003. *National report on sustainable forests – 2003. Forest Service Report FS-766*. USDA Forest Service, Washington, DC.

Unland, H.E., P.R. Houser, S.W.J., and Z.L. Yang, 1996. Surface flux measurement and modeling at a semi-arid Sonoran Desert site. *Agricultural and Forest Meteorology*, **82**, 119-153.

USDA Forest Service, 2005. *Forest Insect and Disease Conditions in the United States, 2004*. Washington, D.C.

USDA Forest Service and U.S. Geological Survey, 2002. *Forest Cover Types: National Atlas of the United States*, Reston, VA [http://nationalatlas.gov/articles/biology/a\\_forest.html](http://nationalatlas.gov/articles/biology/a_forest.html)

Valentin, C., J. Poesen, and Y. Li. 2005, Gully erosion: impacts, factors and control. *Catena*, **63**, 132-153.

Van Auken, O.W., 2000. Shrub invasions of North American semiarid grasslands. *Annual Review of Ecology & Systematics*, **31**, 197-215.

Van de Koppel, J., M. Reiterkerk, F.V. Langevelde, L. Kumar, C.A. Klausmier, J.M. Fryxell, J.W. Hearne, J.V. Andel, N.D. Ridder, A. Skidmore, L. Stroosnijder, and H.T. Prins, 2002. Spatial heterogeneity and irreversible vegetation change in semiarid grazing systems. *American Naturalist*, **159**, 209-218.

Venable, D.L., and C.E. Pake, 1999. Population ecology of Sonoran Desert annual plants. Pages 115-142 *In*: R. H. Robichaux, (ed), *The ecology of Sonoran Desert plants and plant communities*. University of Arizona Press, Tucson.

Wagner, F.H., (ed), 2003. *Preparing for a changing climate: the potential consequences of climate variability and change, Rocky Mountains, Great Basin*. Report of the Rocky Mountain/Great Basin Regional Assessment Team, U.S. Global Change Research Program, Utah State University, Logan.

Wainwright, J.A., A.J. Parsons, W.H. Schlesinger, and A.D. Abrahams, 2002. Hydrology-vegetation interactions in areas of discontinuous flow on a semi-arid bajada, southern New Mexico. *Journal of Arid Environments*, **51**, 219-258.

Wainwright, J.A., A.J. Parsons, W.H. Schlesinger, and A.D. Abrahams, 2002. Hydrology-vegetation interactions in areas of discontinuous flow on a semi-arid bajada, southern New Mexico. *Journal of Arid Environments*, **51**,219-258.

Wainwright, J., A.J. Parsons, and A.D. Abrahams 2000. Plot-scale studies of vegetation, overland flow and erosion interactions: case studies from Arizona and New Mexico. *Hydrological Processes*, **14**,2921-2943.

Walther, G.R., 2007. Tackling ecological complexity in climate impact research. *Science*, **315**, 606-607.

Walther, G.R., E. Post, P. Convey, A. Menzel, C. Parmesan, T.J.C. Beebee, J.M. Fromentin, O. Hoegh-Guldberg, and F. Bairlein, 2002. Ecological responses to recent climate change. *Nature*, **416**, 389-395.

Ward, J.K., D.T. Tissue, R.B. Thomas, and B.R. Strain, 1999. Comparative responses of model C3 and C4 plants to drought in low and elevated CO<sub>2</sub>. *Global Change Biology*, **5**, 857-867.

Waring, R.H., 1987. Characteristics of trees predisposed to die. *BioScience*, **37**, 569-574.

Warren, M.S., J.K. Hill, J.A. Thomas, J. Asher, R. Fox, B. Huntley, D.B. Roy, M. G. Telfer, S. Jeffcoate, P. Harding, G. Jeffcoate, S.G. Willis, J.N. Greatorex-Davies, D. Moss, and C.D. Thomas, 2001. Rapid responses of British butterflies to opposing forces of climate and habitat change. *Nature*, **414**, 65-69.

Webb, R.H., 1996. *Grand Canyon, a Century of Change: Rephotography of the 1889-1890 Stanton Expedition*. University of Arizona Press, Tucson.

Webb, R.H., and S.A. Leake, 2006. Ground-water surface-water interactions and long-term change in riverine riparian vegetation in the southwestern United States. *Journal of Hydrology*, **320**, 302-323.

- Webb, R.H., S.A. Leake, and R.M. Turner, 2007. *The Ribbon of Green: Change in Riparian Vegetation in the Southwestern United States*. University of Arizona Press, Tucson.
- Webb, W.L., W.K. Lauenroth, S.R. Szarek, and R.S. Kinerson, 1983. Primary production and abiotic controls in forests, grasslands, and desert ecosystems in the United States. *Ecology*, **64**, 134-151.
- Weiss, J., and J.T. Overpeck, 2005. Is the Sonoran Desert losing its cool? *Global Change Biology*, **11**, 2065-2077.
- Wells, O.O., and P.C. Wakeley, 1966. Geographic variation in survival, growth, and fusiform rust infection of planted loblolly pine. *Forest Science Monographs*, **11**, 1-40.
- Wells, S.G., L.D. McFadden, J. Poths, and C.T. Olinger, 1995. Cosmogenic <sup>3</sup>He surface-exposure dating of stone pavements: implications for landscape evolution in deserts. *Geology*, **23**, 613-616.
- Weltzin, J.F., and G.R. McPherson, 2000. Implications of precipitation redistribution for shifts in temperate savanna ecotones. *Ecology*, **81**, 1902-1913.
- Wessman, C., S. Archer, L. Johnson, and G. Asner, 2004. Woodland expansion in U.S. grasslands: assessing land-cover change and biogeochemical impacts. Pages 185-208 In: G. Gutman, Janetos, A.C., Justice, C.O., Moran, E.F., Mustard, J.F., Rindfuss, R.R., Skole, D., Turner II, B.L., Cochrane, M.A., (eds.), *Land Change Science: Observing, Monitoring and Understanding Trajectories of Change on the Earth's Surface*. Kluwer Academic Publishers, Dordrecht.
- West, N., (ed), 1983. *Temperate deserts and semi-deserts*. Ecosystems of the World 5, Elsevier Scientific Publishing Co.
- West, N.E., and T.P. Yorks, 2006. Long-term interactions of climate, productivity, species richness, and growth form in relictual sagebrush steppe plant communities. *Western North American Naturalist*, **66**, 502-526.
- Westerling, A.L., D.R. Cayan, T.J. Brown, and B.L. Hall, 2004. Climate, Santa Ana winds, and wildfires in Southern California. *EOS*, transactions **85**, 289-300.
- Westerling, A.L., H.G. Hidalgo, D.R. Cayan, and T.W. Swetnam, 2006. Warming and earlier spring increase western U.S. forest wildfire activity. *Science*, **313**, 940-943.
- White, M., F. Hoffman, W. Hargrove, and R. Nemani, 2005. A global framework for monitoring phenological responses to climate change. *Geophysical Research Letters*, **32**, Art. No. L04705 (Feb 04718).
- Whittaker, R.H., 1975. *Communities and Ecosystems*. Macmillan, London : New York.

- Wilcox, B.P., 2002. Shrub control and streamflow on rangelands: a process-based viewpoint. *Journal of Range Management*, **55**, 318-326.
- Williams, D.G., and J.R. Ehleringer, 2000. Carbon isotope discrimination and water relations of oak hybrid populations in southwestern Utah. *Western North American Naturalist*, **60**, 121-129.
- Williams, J.W., and S.T. Jackson, 2007. Novel climates, no-analog communities, and ecological surprises. *Frontiers in Ecology and the Environment*, **5**, 475-482.
- Williams, D.G., and Z. Baruch, 2000. African grass invasion in the Americas: ecosystem consequences and the role of ecophysiology. *Biological Invasions*, **2**, 123-140.
- Wilmking, M., G.P. Juday, V.A. Barber, and H.S.J. Zald, 2004. Recent climate warming forces contrasting growth responses of white spruce at treeline in Alaska through temperature thresholds. *Global Change Biology*, **10**, 1724-1736.
- Wisdom, M.J., M.M. Rowland, and L.H. Suring, (eds.), 2005. *Habitat threats in the sagebrush ecosystem: methods of regional assessment and applications in the Great Basin*. Allen Press/Alliance Communication Group Publishing, Lawrence, KS 66044.
- Wittig, V.E., C.J. Bernacchi, X.G. Zhu, C. Calfapietra, R. Ceulemans, P. Deangelis, B. Gielen, F. Miglietta, P.B. Morgan, and S.P. Long, 2005. Gross primary production is stimulated for three *Populus* species grown under free-air CO<sub>2</sub> enrichment from planting through canopy closure. *Global Change Biology*, **11**, 644-656.
- Wondzell, S.M., G.L. Cunningham, and D. Bachelet, 1996. Relationships between landforms, geomorphic processes, and plant communities on a watershed in the northern Chihuahuan Desert. *Landscape Ecology*, **1**, 351-362.
- Wood, Y.A., T. Meixner, P.J. Shouse, and E.B. Allen, 2006. Altered ecohydrologic response drives native shrub loss under conditions of elevated nitrogen deposition. *Journal of Environmental Quality*, **35**, 76-92.
- Woodward, F.I., 1987. *Climate and Plant Distribution*. Cambridge University Press, Cambridge.
- Wullschlegel, S.D., P.J. Hanson, and D.E. Todd, 2001. Transpiration from a multi-species deciduous forest as estimated by xylem sap flow techniques. *Forest Ecology and Management*, **143**, 205-213.
- Wurzler, S., T.G. Reisin, and Z. Levin, 2000. Modification of mineral dust particles by cloud processing and subsequent effects on drop size distributions. *Journal of Geophysical Research*, **105**, 4501-4512.
- Wythers, K.R., P.B. Reich, M.G. Tjoelker, and P.B. Bolstad, 2005. Foliar respiration acclimation to temperature and temperature variable Q<sub>10</sub> alter ecosystem carbon balance. *Global Change Biology*, **11**, 435-449.

Yao, J., D. Peters, K. Havstad, R. Gibbens, and J. Herrick, 2006. Multi-scale factors and long-term responses of Chihuahuan Desert grasses to drought. *Landscape Ecology*, **21**, 1217-1231.

Zender, C.S., and E.Y. Kwon, 2005. Regional contrasts in dust emission responses to climate. *Journal of Geophysical Research-Atmospheres*, **110**, D13201.

Ziska, L.H., 2003. Evaluation of the growth response of six invasive species to past, present and future atmospheric carbon dioxide. *Journal of Experimental Botany*, **54**, 395-404.

Zhu, Z.I., and D.L. Evans, 1994. United States forest types and predicted percent forest cover from AVHRR data. *Photogrammetric Engineering and Remote Sensing*, **60**, 525-531.

#### 4. Water

Alexander, R. B., and R.A. Smith, 2006: Trends in the nutrient enrichment of U.S. rivers during the late 20th century and their relation to changes in probable stream trophic conditions, *Limnology and Oceanography*, **51**, 639-654.

Andreadis, K.M., and D.P. Lettenmaier, 2006: Trends in 20th century drought over the continental United States, *Geophysical Research Letters*, **33**, doi:10.1029/2006GL025711.

Arnell, N., and C. Liu, 2001: Hydrology and water resources, pp. 191-233 in *Climate Change 2001: Impacts, Adaptation, and Vulnerability*, Cambridge University Press.

Arnell, N., 2002: *Hydrology and Global Environmental Change*, Pearson Education Ltd, Edinburgh, 346 p.

Barber, V.A., G.P. Juday, and B.P. Finney, 2000: Reduced growth of Alaskan white spruce in the twentieth century from temperature-induced drought stress, *Nature*, **405**, 668-673.

Bartholow, J.M., 2005: Recent water temperature trends in the Lower Klamath River, California, *Journal of Fisheries Management*, **25**, 152-162.

Bowling, L.C., P. Storck, and D.P. Lettenmaier, 2000: Hydrologic effects of logging in Western Washington, United States, *Water Resources Research*, **36**, 3223-3240.

Bowling, L.C. and D.P. Lettenmaier, 2001: The effect of forest roads and harvest on catchment hydrology in a mountainous maritime environment, *In: Land Use and Watersheds: Human Influence on Hydrology and Geomorphology in Urban and Forest Areas*, Water Science and Application, The American Geophysical Union, **2**, 145-164.

Brutsaert, W., and M.B. Parlange, 1998: Hydrologic cycle explains the evaporation paradox, *Nature*, **396**, 30.

- Brutsaert, W., 2006: Indications of increasing land surface evaporation during the second half of the 20<sup>th</sup> century, *Geophysical Research Letters*, **33**, doi:10.1029/2006GL027532.
- Burns, D.A., J. Klaus, and M.R. McHale, 2007: Recent climate trends and implications for water resources in the Catskill Mountain region, New York, USA, *Journal of Hydrology* **336**, 155-170.
- Carroll, A.L., S.W. Taylor, J. Régnière, and L. Safranyik, 2003: Effects of climate change on range expansion by the mountain pine beetle in British Columbia, In: T.L. Shore, J.E. Brookes, and J.E. Stone, eds *Information Report BC-X-399, Mountain Pine Beetle Symposium: Challenges and Solutions* (pp. 223-232, Natural Resources Canada, Victoria, British Columbia.
- Caspersen, J., S. Pacala, J. Jenkins, G. Hurtt, P. Moorcroft, and R. Birdsey, 2000: Contributions of land-use history to carbon accumulation in U.S. forests, *Science*, **290**, 1148-1151.
- Cayan, D.R., S.A. Kammerdiener, M.D. Dettinger, J.M. Caprio, and D.L. Peterson, 2001: Changes in the onset of spring in the western United States, *Bulletin of the American Meteorological Society*, **82**, 299-415.
- Chang, H.J. 2004: Water quality impacts of climate and land use changes in southeastern Pennsylvania, *Professional Geographer*, **56**, 240-257.
- Christensen, N.S., and D.P. Lettenmaier, 2007: A multimodel ensemble approach to assessment of climate change impacts on the hydrology and water resources of the Colorado River basin, *Hydrology and Earth System Science*, **11**, 1417-1434.
- Cohn, T.A., and H.F. Lins, 2005: Nature's style: Naturally trendy, *Geophysical Research Letters* **32**, doi:10.1029/2005GL024476.
- Crozier, L., and R.W. Zabel, 2006. Climate impacts at multiple scales: evidence for differential population responses in juvenile Chinook salmon, *Journal of Animal Ecology*, **75**, 1100-1109.
- Curriero, F.C., J.A. Patz, J.B. Rose, and S. Lele, 2001: The association between extreme precipitation and waterborne disease outbreaks in the United States, 1948-1994, *American Journal of Public Health*, **91**, 1194-1199.
- Czikowsky, M.J., and D.R. Fitzjarrald, 2004: Evidence of seasonal changes in evapotranspiration in eastern U.S. hydrological records, *Journal of Hydrometeorology*, **5**, 974-988.
- Dai, A., K.E. Trenberth, and T. Qian, 2004. A global data set of Palmer Drought Severity Index for 1870-2002: Relationship with soil moisture and effects of surface warming, *Journal of Hydrometeorology*, **5**, 1117-1130.
- Dressler, K.A., S.R. Fassnacht, and R.C. Bales, 2006: A Comparison of Snow Telemetry and Snow Course Measurements in the Colorado River Basin, *Journal of Hydrometeorology*, **7**, 705-712.

Easterling, D. R., and T. R. Karl, 2001: "Potential Consequences of Climate Variability and Change for the Midwestern United States, chapter 6 in National Assessment Team, U.S. Global Change Research Program, *Climate Change Impacts on the United States: The potential consequences of climate variability and change*.

Easterling, D.R., 2002: Recent changes in frost days and the frost-free season in the United States, *Bulletin of the American Meteorological Society*, **83**, doi: 10.1175/1520-0477.

Eaton, J.G., and R.M. Scheller, 1996: Effects of climate warming on fish thermal habitat in streams of the United States, *Limnology and Oceanography*, **41**, 1109-1115.

Elliott, J.A., I.D. Jones, and S.J. Thackeray, 2006: Testing the sensitivity of phytoplankton communities to changes in water temperature and nutrient load in a temperate lake, *Hydrobiologica*, **559**, 401-411.

Feng, S. and Q. Hu, 2004: Changes in agro-meteorological indicators in the contiguous United States: 1951-2000. *Theoretical and App. Climatology*, **78**, 247-264.

Garbrecht, J., M. van Liew, and G.O. Brown, 2004: Trends in precipitation, streamflow, and evapotranspiration in the Great Plains of the United States, *Journal of Hydrologic Engineering*, **9**, 360-367.

GAO. 2004: The General Accounting Office (GAO) Report: *Watershed Management: Better Coordination of Data Collection Efforts Needed to Support Key Decisions*, <http://www.gao.gov/new.items/d04382.pdf>

Gleick, P.H., 1999: Introduction: Studies for the water sector of the National Assessment, *Journal of Water Resources Association*, **35**, 1297-1300.

Gleick, P.H., and D.B. Adams (ed.), 2000: *Water: The potential consequences of climate variability and change for the water resources of the United States*, U.S. Geological Survey, 151 p. (available from [pistaff@pacinst.org](mailto:pistaff@pacinst.org)).

Gleick, P.H., 1996: Basic water requirements for human activities: meeting basic needs, *Water International*, **21**, 83-92.

Golubev, V.S., J.H. Lawrimore, P.Y. Groisman, N.A. Speranskaya, S.A. Zhuravin, M.J. Menne, T.C. Peterson, and R.W. Malone, 2001: Evaporation changes over the contiguous United States and the former USSR: a reassessment, *Geophysical Research Letters*, **28**, 2665-2668.

Graf, W.L., 1999: Dam nation: A geographic census of American dams and their large-scale hydrologic impacts, *Water Resources Research*, **35**, 1305-1311.

Green, T.R., Taniguchi, M., Kooi, H. 2007: Potential impacts of climate change and human activity on subsurface water resources. *Vadose Zone Journal*, **6**, 531-532. doi: 10.2136/vzj2007.0098.

- Groisman, P.Y., R.W. Knight, T.R. Karl, D.R. Easterling, B. Sun, and J.M. Lawrimore, 2004: Contemporary changes of the hydrological cycle over the contiguous United States: Trends derived from in-situ observations, *Journal of Hydrometeorology*, **5**, 64-85.
- Groisman, P.Y., R.W. Knight, and T.R. Karl, 2001: Heavy precipitation and high streamflow in the contiguous United States: Trends in the twentieth century, *Bulletin of the American Meteorological Society*, **82**, 219-246.
- Groisman, P.Y., T.R. Karl, D.R. Easterling, R.W. Knight, P.F. Jamason, K. J. Hennessey, R. Suppiah, C. M. Page, J. Wibig, K. Fortuniak, V.N. Razuvaev, A. Douglas, E. Førland, and P.M. Zhai, 1999; Changes in the probability of heavy precipitation: Important indicators of climatic change. *Climatic Change*, **42**, 243-283.
- Gurdak, J.J., R.T. Hanson, P.B. McMahon, B.W. Bruce, J.E. McCray, G.D. Thyne, and R.C. Reedy, 2007: Climate variability controls on unsaturated water and chemical movement, High Plains Aquifer, USA, *Vadose Zone Journal*, **6**, 533-547.
- Hamlet A.F., and D.P. Lettenmaier, 2007: Effects of 20th Century Warming and Climate Variability on Flood Risk in the Western U.S., *Water Resources Research*, **43**, W06427, doi:10.1029/2006WR005099.
- Hamlet A.F., Mote P.W, Clark M.P., Lettenmaier D.P., 2007: 20th Century Trends in Runoff, Evapotranspiration, and Soil Moisture in the Western U.S., *Journal of Climate*, **20** (8), 1468-1486.
- Hamlet, A.F., P.W. Mote, M.P. Clark, and D.P. Lettenmaier, 2005. Effects of temperature and precipitation variability on snowpack trends in the western U.S., *Journal of Climate*, **18**, 4545-4561.
- Hanson, R.T., and M.D. Dettinger, 2005. Ground water/surface water responses to global climate simulations, Santa Clara-Calleguas basin, Ventura, California, *Water Resources Bulletin*, **41**, 517-536.
- Hinzman, L.D., N.D. Bettez, W.R. Bolton, F.S. Chapin, M.B. Dyurgerov, C.L. Fastie, B. Griffith, R.D. Hollister, A. Hope, H.P. Huntington, A.M. Jensen, G.J. Jia, T. Jorgenson, D.L. Kane, D.R. Klein, G. Kofinas, A.H. Lynch, A.H. Lloyd, A.D. McGuire, F.E. Nelson, W.C. Oechel, T.E. Osterkamp, C.H. Racine, V.E. Romanovsky, R.S. Stone, D.A. Stow, M. Sturm, C.E. Tweedie, G.L. Vourlitis, M.D. Walker, D.A. Walker, P.J. Webber, J.M. Welker, K.S. Winker, and K. Yoshikawa, 2005. Evidence and implications of recent climate change in northern Alaska and other Arctic regions, *Climatic Change*, **72**, 251-298.
- Hobbins, M.T., J.A. Ramirez, and T. Brown, 2004. Trends in pan evaporation and actual evapotranspiration across the conterminous U.S.: paradoxical or complementary? *Geophysical Research Letters*, **31**, doi: 10.1029/2004GL019846.

Hodgkins, G.A., and R.W. Dudley. 2006a: Changes in the timing of winter-spring streamflows in eastern North America, 1913-2002, *Geophysical Research Letters*, **33**, L06402, doi:10.1029/2005GL025593.

Hodgkins, G.A., and R.W. Dudley, 2006b. Changes in late-winter snowpack depth, water equivalent, and density in Maine, 1926-2004, *Hydrological Processes*, **20**, 741-751.

Hodgkins, G.A., R.W. Dudley, and T.G. Huntington, 2005. Changes in the number and timing of ice-affected flow days on New England rivers, 1930-2000, *Climatic Change*, **71**, 319-340.

Hodgkins, G.A., R.W. Dudley, and T.G. Huntington, 2003. Changes in the timing of high river flows in New England over the 20th century, *Journal of Hydrology*, **278**, 244-252.

Hodgkins, G.A., I.C. James, and T.G. Huntington, 2002. Historical changes in lake ice-out dates as indicators of climate change in New England, *International Journal of Climatology*, **22**, 1819-1827.

Huntington, T. G., G.A. Hodgkins, B.D. Keim, and R.W. Dudley, 2004. Changes in the proportion of precipitation occurring as snow in New England (1949 to 2000), *Journal of Climate*, **17**, 2626-2636.

Hutson, S.S., N.L. Barber, J.F. Kenny, K.S. Linsey, D.S. Lumia, and M.A. Maupin, 2004. Estimated use of water in the United States in 2000, U.S. Geological Survey Circular 1268, 46 p. (available from [www.usgs.gov](http://www.usgs.gov)).

Intergovernmental Panel on Climate Change (IPCC), 2000. *Special Report on Emission Scenarios*, Cambridge University Press, New York.

Jain, S., and V.P. Singh, 2003. *Water resource systems planning and management*, Elsevier, New York, 882 p.

Jha, M., Z. Pan, E.S. Takle, and R. Gu, 2004. Impacts of climate change on streamflow in the upper Mississippi River basin: A regional climate model perspective, *J Geophys. Res.*, **109**, doi:10.1029/2003JD003686.

Jolly, W.M., R. Nemani, and S.W. Running, 2005. A generalized, bioclimatic index to predict foliar phenology in response to climate, *Global Change Biology*, **11**, 619-632.

Jones, J. A., and G. E. Grant, 1996. Peak flow responses to clear-cutting and roads in small and large basins, western Cascades, Oregon, *Water Resources Research*, **32**, 959-974.

Joos, F., I.C. Prentice, and J.I. House, 2002. Growth enhancement due to global atmospheric change as predicted by terrestrial ecosystem models: consistent with U.S. forest inventory data, *Global Change Biology*, **8**, 299-303.

- Keleher, C.J., and F.J. Rahel, 1996. Thermal limits to salmonid distributions in the Rocky Mountain region and potential habitat loss due to global warming: a Geographic Information System (GIS) Approach, *Trans Am. Fisheries Soc.*, **125**, 1-13.
- Langbein, W.B. and Slack, J.R., 1982. Yearly variations in runoff and frequency of dry years for the conterminous United States, 1911-79: U.S. Geological Survey Open-File Report 82-751, 85 pp.
- Lettenmaier, D.P., 2003. The role of climate in water resources planning and management, pp. 247-266 In: R. Lawford, D. Fort, H. Hartmann, and S. Eden, eds., *Water: Science, policy, and management*, Water Resources Monograph 16, American Geophysical Union.
- Lettenmaier, D.P., E.F. Wood, and J.R. Wallis, 1994. Hydro-climatological trends in the continental U.S., 1948-88, *Journal of Climate*, **7**, 586-607.
- Liepert, B.G., 2002. Observed reductions of surface solar radiation at sites in the United States and worldwide from 1961 to 1990, *Geophysical Research Letters*, **29**, 10.1029/2002GL014910.
- Liang, X., D.P. Lettenmaier, E.F. Wood, and S.J. Burges, 1994: A Simple Hydrologically Based Model of Land and Energy Fluxes for General Circulation Models, *Journal of Geophysical Research*, **99**, 14,415-14,428.
- Lins, H.F., 2007: Observed trends in hydrological cycle components, Section 197 in *Encyclopedia of Hydrological Sciences*, V. 5, part 17, p. 3035-3044., J. Wiley & Sons, London.
- Lins, H.F., and J.R. Slack, 2005: Seasonal and regional characteristics of U.S. streamflow trends in the United States from 1940 to 1999, *Physical Geography*, **26**, 489-501.
- Lins, H.F., and J.R. Slack, 1999: Streamflow trends in the United States, *Geophysical Research Letters*, **26**, 227-230.
- Liu, A.J., S.T.Y. Tong, and J.A. Goodrich, 2000. Land use as a mitigation strategy for the water-quality impacts of global warming: a scenario analysis on two watersheds in the Ohio River Basin, *Environmental. Engineering and Policy*, **2**, 65-76.
- Loaiciga, H.A., D.R. Maidment, and J.B. Valdes, 2000. Climate change impacts on a regional Karst aquifer, Texas, USA, *Journal of Hydrology* **227**, 173-194.
- Logan, J.A., J. Regniere, and J.A. Powell: 2003. Assessing the impacts of global warming on forest pest dynamics, *Frontiers in Ecology and the Environment*, **1**, 130-137.
- Lucht, W., I.C. Prentice, R.B. Myneni, S. Sitch, P. Friedlingstein, W. Cramer, P. Bousquet, W. Buermann, and B. Smith, 2002. Climate control of the high-latitude vegetation greening trend and Pinatubo effect, *Science*, **296**, 1687-1689.

Maass, A., M.M. Hufschmidt, R. Dorfman, H.A. Thomas, Jr., S.A. Marglin, and G.M. Fair, 1962. Design of water resources systems: New Techniques for Relating Economic Objectives, Engineering Analysis, and Governmental Planning. Harvard University Press, Cambridge, Mass.

Matheussen B., R.L. Kirschbaum, I.A. Goodman, G.M. O'Donnell, and D.P. Lettenmaier, 2000. Effects of land cover change on streamflow in the interior Columbia basin, *Hydrological Processes*, **14**, 867-885.

Mauget, S.A., 2003. Multidecadal regime shifts in U.S. streamflow, precipitation, and temperature at the end of the Twentieth Century, *Journal of Climate*, **16**, 3905-3916.

Mauget, S.A., 2004. Low frequency streamflow regimes of the central United States: 1939-1998, *Climatic Change*, **63**, 121-144.

Maurer, E.P., 2007. Uncertainty in hydrologic impacts of climate change in the Sierra Nevada, California under two emissions scenarios, *Climatic Change*, **82**, 309-325, doi: 10.1007/s10584-006-9180-9.

Maurer, E.P., A.W. Wood, J.C. Adam, D.P. Lettenmaier, and B. Nijssen, 2002. A long-term hydrologically-based data set of land surface fluxes and states for the conterminous United States, *Journal of Climate*, **15**, 3237-3251.

McCabe, G.J., and D.M. Wolock, 2002a. A step increase in streamflow in the conterminous United States, *Geophysical Research Letters*, **29**, doi:10.1029/2002GL015999.

McCabe, G.J., and D.M. Wolock, 2002b. Trends and temperature sensitivity of moisture conditions in the conterminous United States, *Climate Research*, **20**, 19-29.

McKenzie, D., A.E. Hessel, and D.L. Peterson, 2001. Recent growth of conifer species of western North America: Assessing spatial patterns of radial growth trends. *Canadian Journal Forest Research*, **31**, 526-538.

Milly, P.C.D., J. Betancourt, M. Falkenmark, R.M. Hirsch, Z. Kundzewicz, D.P. Lettenmaier, and R.J. Stouffer, 2008. Stationarity is Dead: Whither Water Management. *Science*, **319**, 573-574.

Milly, P.C.D., K.A. Dunne, and A.V. Vecchia, 2005. Global pattern of trends in streamflow and water availability in a changing climate, *Nature*, **438**, 347-350.

Milly, P.C.D., and K.A. Dunne, 2001. Trends in evaporation and surface cooling in the Mississippi River basin. *Geophysical Research Letters*, **28**, 1219-1222.

Moog, D.B., and P.J. Whiting, 2002. Climatic and agricultural contributions to changing loads in two watershed in Ohio, *Journal of Environmental Quality*, **31**, 83-89.

- Mote, P.W., A.F. Hamlet, M.P. Clark, and D.P. Lettenmaier, 2005. Declining mountain snowpack in western North America, *Bulletin of the American Meteorological Society*., **86**, 39-49.
- Mote, P.W., 2003. Trends in snow water equivalent in the Pacific Northwest and their climatic causes. *Geophysical Research Letters*, **30**, doi:10.1029/2003GL017258.
- Murdoch, P.S., J.S. Baron, and T.L. Miller, 2000. Potential effects of climate change on surface-water quality in North America. *Journal of the American Water Resources Association*, **36**, 357-366.
- Myneni, R.B., C.D. Keeling, C.J. Tucker, G. Asrar, and R.R. Nemani, 1997. Increased plant growth in the northern high latitudes from 1981-1991. *Nature*, **386**, 698-701, doi:10.1038/386698a0.
- National Research Council, Global Water and Energy Experiment (GEWEX) panel, 1998. Global Water and Energy Experiment (GEWEX) Continental-Scale International Project: A review of progress and opportunities. National Academy Press, Washington D.C., 93 pp.
- Nemani, R.R., C.D. Keeling, H. Hashimoto, W.M. Jolly, S.C. Piper, C.J. Tucker, R.B. Myneni, and S.W. Running, 2003. Climate-driven increases in global terrestrial net primary production from 1982 to 1999, *Science*, **300**, 1560-1563.
- NRC (National Research Council of the National Academies), 2004; *Confronting the Nation's Water Problems: The role of research*: The National Academies Press, Washington, DC, <http://books.nap.edu/books/0309092582/html/index.html>
- Oki, D.S., 2004. Trends in streamflow characteristics at long-term gaging stations, Hawaii. U.S. Geological Survey Scientific Investigations Report 2004-5080, 116 pp.
- Pagano, T., and D. Garen, 2005. A recent increase in western U.S. streamflow variability and persistence. *Journal of Hydrometeorology*, **6**, 173-179.
- Pagano, T., D. Garen, and S. Sorooshian, 2004. Evaluation of official western U.S. seasonal water supply outlooks, 1922-2002. *Journal of Hydrometeorology*, **5**, 896-909.
- Petersen, J.H., and J.F. Kitchell, 2001. Climate regimes and water temperature changes in the Columbia River: bioenergetic implications for predators of juvenile salmon. *Canadian Journal of Fisheries and Aquatic Sciences*, **58**, 1831-1841.
- Peterson, T.C., V.S. Golubev, and P.V. Groisman, 1995: Evaporation losing its strength, *Nature*, **377**, 687-688.

Poff, N.L., M. Brinson, and J.B. Day, 2002 Freshwater and coastal ecosystems and global climate change: A review of projected impacts for the United States. Pew Center on Global Climate Change, Arlington, VA. 44 pp. Available at [www.pewclimate.org/global-warming-in-depth/all\\_reports/aquatic\\_ecosystems/index.cfm](http://www.pewclimate.org/global-warming-in-depth/all_reports/aquatic_ecosystems/index.cfm)

Potter, K.W., 1991: Hydrologic impacts of changing land management practices in a moderate-sized agricultural catchment, *Water Resources Research*, **27**, 845-856.

Ramstack, J.M., S.C. Fritz, and D.R. Engstrom, 2004: Twentieth century water quality trends in Minnesota lakes compared with presettlement variability, *Canadian Journal of Fisheries and Aquatic Sciences.*, **61**, 561-576.

Roderick, M.L., and G.D. Farquhar, 2002: The cause of decreased pan evaporation over the past 50 years, *Science*, **298**, 1410-1411.

Rosenzweig, C., D.C. Major, K. Demong, C. Stanton, R. Horton, and M. Stults, 2007: Managing climate change risks in New York City's water system: Assessment and adaptation planning, *Mitigation and Adaptation Strategies for Global Change*, DOI 10.1007/s11027-006-9070-5.

Schaefer, G.L., M.H. Cosh, and T.L. Jackson, 2007: The USDA Natural Resources Conservation Service Soil Climate Analysis Network (SCAN), *Journal of Atmospheric and Oceanic Technology* **24**, 2073-2077.

Schoennagel, T., T.T. Veblen, and W.H. Romme, 2004: The interaction of fire, fuels, and climate across Rocky Mountain forests, *BioScience*, **54**, 661-676.

Scibek, J., and D.M. Allen, 2006: Comparing modeled responses to two high-permeability, unconfined aquifers to predicted climate change, *Global and Planetary Change*, **50**, 50-62.

Senhorst, H.A.J., and J.J.G. Zwolsman, 2005: Climate change and effects on water quality: a first impression, *Water Science Technology*, **51**, 53-59.

Schindler, D.W., S.E. Bayley, B.R. Parker, K.G. Beaty, D.R. Cruikshank, E.J. Fee, E.U. Schindler, and M.P. Stainton, 1996: The effects of climatic warming on the properties of boreal lakes and streams at the experimental lakes area, northwestern Ontario, *Limnology & Oceanography*, **41**, 1004-1017.

Schwartz, R.C., P.J. Deadman, D.J. Scott, and L.D. Mortsch, 2004: Modeling the impacts of water level changes on a Great Lakes community, *Journal of the American Water Resources Association*, **40**, 647-662.

Seager, R., M. Ting, I. Held, Y. Kushnir, J. Lu, G. Vecchi, H.-P. Huang, N. Harnik, A. Leetmaa, N.-C. Lau, C. Li, J. Velez, and N. Naik, 2007: Model projections of an imminent transition to a more arid climate in southwestern North America, *Science*, **316**, 1181-1184.

- Shuttleworth, W.J., 1993: Evaporation, Chapter 4 in *Handbook of Hydrology*, D.R. Maidment, ed., McGraw Hill, New York.
- Slack, J.R., A.M. Lumb, and J.M. Landwehr, 1993: Hydroclimatic data network (HCDN): A U.S. Geological Survey streamflow data set for the United States for the study of climate variation, 1874-1988. *Water Resources Investigations Reports*, **93**, 4076.
- Stednick, J.D., 1996: The effects of timber harvest on annual water yield, *Journal of Hydrology*, **176**, 79-93.
- Stefan, H.G., X. Fang, and J.G. Eaton, 2001: Simulated fish habitat changes in North American lakes in response to projected climate warming, *Transactions of the American Fisheries Society*, **130**, 459-477.
- Stewart, I.T., D.R. Cayan, and M.D. Dettinger, 2005: Changes toward earlier streamflow timing across western North America, *Journal of Climate*, **18**, 1136-1155.
- Sudler, C. E., 1927: Storage required for the regulation of streamflow, *Transactions of the American Society of Civil Engineers*, **91**, 622-660.
- Szilagyi, J., G.G. Katul, and M.B. Parlange, 2001: Evapotranspiration intensifies over the conterminous United States, *Journal of Water Resources Planning and Management*, **127**, 354-362.
- Takle, E.S., C. Anderson, M. Jha, and P.W. Gassman, 2006: Upper Mississippi River basin modeling system Part 4: Climate change impacts on flow and water quality, In: V.P. Singh and Y.J. Xu, eds., *Coastal Hydrology and Processes*, 135-142, Water Resources Publications.
- U.S. Geological Survey, 1998: A new evaluation of the USGS stream gauging network, Report to Congress, Nov. 30, 1998, 20 pp.
- Vaccaro, J., 1992: Sensitivity of groundwater recharge estimates to climate variability and change, Columbia Plateau, Washington, *Journal of Geophysical Research*, **97**, 2821-2833.
- Vogel, R.M., T. Yushiou, and J.F. Limbrunner, 1998: The regional persistence and variability of annual streamflow in the United States, *Water Resources Research*, **34**, 3445-3459.
- Volney, W.J.A. and R.A. Flemming, 2000: Climate change impacts of boreal forest insects, *Agriculture, Ecosystems and Environment*, **82**, 283-294.
- Walter, M.T., D.S. Wilks, J.Y. Parlange, and B.L. Schneider, 2004: Increasing evapotranspiration from the conterminous United States. *Journal of Hydrometeorology*, **5**, 405-408.

Westerling, A.L., A. Gershunov, T.J. Brown, D.R. Cayan, and M.D. Dettinger, 2003: Climate and wildfire in the western United States. *Bulletin of the American Meteorological Society*, **48**, doi:10.1175/BAMS-84-5-595.

Westerling, A.L., H.G. Hidalgo, D.R. Cayan, and T.W. Swetnam, 2006: Warming and earlier Spring increases western U.S. forest wildfire activity, *Science*, **313**, 940-943.

Williams, D.W. and A.M. Liebhold, 2002: Climate change and the outbreak ranges of two North American bark beetles, *Agricultural and Forest Entomology*, **4**, 87-99.

Woodhouse, C.A., and J.T. Overpeack, 1998: 2000 years of drought variability in the central United States, *Bulletin of the American Meteorological Society*, **79**, 2693-2714.

Wolfe, D.W., M.D. Schwartz, A.N. Lakso, Y. Otsuke, R.M. Pool, and N.J. Shaulis, 2004: Climate change and shifts in spring phenology of three horticultural woody perennials in northeastern USA, *International Journal of Biometeorology* **10**.1007/s00484-004-0248-9.

Zreda, M., and D. Desilets, 2005: Cosmic-ray neutron probe: Non-invasive measurement of soil water content. *American Geophysical Union*, Abstract U21B-0810.

## 5. Biodiversity

Alexander, V., and H. J. Niebauer, 1981. Oceanography of the eastern Bering Sea ice-edge zone in spring. *Limnology and Oceanography*, **26**, 1111-1125.

Alongi, D.M., 2002. Present state and future of the world's mangrove forests. *Environmental Conservation*, **29**, 331-349.

Amstrup, S.C., B.G. Marcot, and D.C. Douglas, 2007. *Forecasting the range-wide status of polar bears at selected times in the 21st century*. Administrative Report, U.S. Department of the Interior. U.S. Geological Survey. 126pp.

Amstrup, S.C. and D.P. DeMaster, 1988. Polar bear – *Ursus maritimus*. Pages 39-56 In: J. W. Lentfer (ed.) *Selected Marine Mammals of Alaska: species accounts with research and management recommendations*. Marine Mammal Commission, Washington, D.C.

Amstrup, S.C., and C. Gardner, 1994. Polar bear maternity denning in the Beaufort Sea. *Journal of Wildlife Management*, **58**, 1-10.

Amstrup, S.C., G. Durner, I. Stirling, N.J. Lunn, and F. Messier, 2000. Movements and distribution of polar bears in the Beaufort Sea. *Canadian Journal of Zoology*, **78**, 948-966.

Atkinson, S.N. and M.A. Ramsay, 1995. The effects of prolonged fasting on the body composition and reproductive success of female polar bears. *Functional Ecology*, **9**, 559-567.

- Baker, J.D., C.L. Littnan, and D.W. Johnston, 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. *Endangered Species Research*, **4**, 1-10.
- Bakun, A., 1990 Global climate change and intensification of global ocean upwelling. *Science*, **247**, 198-201.
- Barnett, T.P., J.C. Adam, and D.P. Lettenmaier, 2005. Potential impacts of a warming climate on water availability in snow-dominated regions. *Nature*, **438**, 303-309.
- Barry, J.P., C.H. Baxter, R.D. Sagarin, S.E. Gilman. 1995. Climate-related, long-term faunal changes in a California rocky intertidal community. *Science* **267**, 672-675.
- Beaubien, E.G. and H.J. Freeland, 2000. Spring phenology trends in Alberta, Canada: Links to ocean temperature. *International Journal of Biometeorology*, **44**(2), 53-59.
- Beaugrand, G., P.C. Reid, F. Ibanez, J.A. Lindley and M. Edwards, 2002. Reorganization of North Atlantic marine copepod biodiversity and climate. *Science*, **296**, 1692-1694.
- Beaugrand, G. 2004. The North Sea regime shift: evidence, causes, mechanisms and consequences. *Progress in Oceanography*, **60**, 245-262.
- Beebee, T.J.C., 2002. Amphibian Phenology and Climate Change. *Conservation Biology*, **16** (6), 1454-1454, doi:10.1046/j.1523-1739.2002.02102.x
- Beebee, T.J.C., 1995. Amphibian Breeding and Climate. *Nature*, **374**, 219-220.
- Beever, E.A., P.F. Brussard, and J. Berger, 2003. Patterns of apparent extirpation among isolated populations of pikas (*Ochotona princeps*) in the Great Basin. *Journal of Mammalogy*, **84**, 37-54.
- Behrenfeld, M.J., R. O'Malley, D.Siegel, C. McClain, J. Sarmiento, G. Feldman, A. Milligan, P. Falkowski, R. Letelier, E. Boss, 2006. Climate-driven trends in contemporary ocean productivity. *Nature*, **444**, 752-755.
- Belchansky, G. I., D. C. Douglas, I. N. Mordvintsev, and N. G. Platonov, 2004. Estimating the time of melt onset and freeze onset over Arctic sea-ice area using active and passive microwave data. *Remote Sensing of the Environment*, **92**(1), 21-39.
- Bell, J.L., L.C. Sloan, and M.A. Snyder. 2004. Regional Changes in Extreme Climatic Events: A Future Climate Scenario. *Journal of Climate*, **17**(1), 81-87.
- Beniston, M., and D.G. Fox, 1996. Impacts of climate change on mountain regions. Pages 191-213 In: R. T. Watson, M. C. Zinyowera, and R. H. Moss (eds.), *Climate change 1995 - Impacts, adaptations and mitigation of climate change*. Contribution of Working Group II to the Second Assessment Report of the IPCC. Cambridge University Press, New York, NY.

- Bertness, M.D., G.H. Leonard, J.M. Levine, J.F. Bruno. 1999. Climate-driven interactions among rocky intertidal organisms caught between a rock and a hard place. *Oecologia* **120**, 446-450
- Blaustein, A.R., Belden, L.K., Olson, D.H., Green, D.M., Root, T.L., and J.M. Kiesecker, 2001. Amphibian breeding and climate change. *Conservation Biology*, **15**(6), 1804-1809
- Blaustein, A.R., T.L. Root, J.M. Kiesecker, L.K. Belden, D.H. Olson, and D.M. Green, 2002. Amphibian phenology and climate change. *Conservation Biology*, **16**(6), 1454-1455.
- Blix, A.S. and J.W. Lentfer, 1979. Modes of thermal protection in polar bear cubs: at birth and on emergence from the den. *American Journal of Physiology*, **236**, 67-74.
- Boisvenue, C. and S.W. Running, 2006. Impacts of climate change on natural forest productivity – evidence since the middle of the 20th century. *Global Change Biology*, **12**, 862-882.
- Both, C. and M.E. Visser, 2005. The effect of climate change on the correlation between avian life-history traits. *Global Change Biology*, **11**(10), 1606-1613.
- Both, C., 2006. Climate change and adaptation of annual cycles of migratory birds. *Journal of Ornithology*, **147**(5, Suppl. 1), 68-68.
- Brandt, M. In Press. Coral disease and bleaching relationships in South Florida. *Further citation to come.*
- Breshears, D.D., N.S. Cobb, P.M. Rich, K.P. Price, C.D. Allen, R.G. Balice, W.H. Romme, J.H. Kastens, M.L. Floyd, J. Belnap, J.J. Anderson, O.B. Myers, and C.W. Meyer, 2005. Regional vegetation die-off in response to global-change-type drought. *Proceedings of the National Academy of Sciences*, **102**, 15144-15148
- Brooks M.L., 2003. Effects of increased soil nitrogen on the dominance of alien annual plants in the Mojave Desert. *Journal of Applied Ecology*, **40**, 344-353.
- Bryant, D., L. Burke, J. McManus, M. Spalding. 1998. Reefs at risk: a map-based indicator of threats to the world's coral reefs. World Resources Institute. Washington, DC Brown, B.E., 1997. Coral bleaching: causes and consequences. *Coral Reefs*, **16** (Supplement 1), S129-138.
- Buckley, J. R., T. Gammelsrød, A. Johannessen, O. M. Johannessen, and L. P. Røed. 1979. Upwelling: Oceanic structure at the edge of the Arctic ice pack in winter. *Science*, **203**, 165-167.
- Burkett, Virginia R., D.A. Wilcox, R. Stottlemeyer, W. Barrow, D. Fagre, J. Baron, J. Price, J.L. Nielsen, C.D. Allen, D.L. Peterson, G. Ruggerone, T. Doyle. 2005. Nonlinear dynamics in ecosystem response to climatic change: case studies and policy implications. *Ecological Complexity*, **2**, 357-394.
- Butler, C., 2003. The disproportionate effect of climate change on the arrival dates of short-distance migrant birds. *Ibis*, **145**, 484-495.

- Caldeira, K. and M.E. Wickett, 2003. Anthropogenic carbon and ocean pH. *Nature*, **425**, 365.
- Calvert, W. and I. Stirling, 1990. Interactions between polar bears and overwintering walrus in the central Canadian high arctic. *International Conference on Bear Research and Management*, **8**, 351-356.
- Carlton, J.T., 2000. Global Change and Biological Invasions in the Oceans. In: Mooney, H.A. and R.J. Hobbs (eds.). *Invasive Species in a Changing World*. Island Press. pp 31-54
- Carr, M.E, M.A. Friedrichs, M. Schmeltz, M.N. Aita, D. Antoine, K.R. Arrigo, I. Asanuma, O. Aumont, R. Barber, M. Behrenfeld, R. Bidigare, E.T. Buitenhuis, J. Campbell, A. Ciotti, H. Dierssen, M. Dowell, J. Dunne, W. Esaias, B. Gentili, W. Gregg, S. Groom, N. Hoepner, J. Ishizaka, T. Kameda, C. Le Quere, S. Lohrenz, J. Marra, F. Melin, K. Moore, A. Morel, T.E. Reddy, J. Ryan, M. Scardi, T. Smyth, K. Turpie, G. Tilstone, K. Waters, Y. Yamanaka, 2006. A comparison of global estimates of marine primary production from ocean color. *Deep Sea Research*, **53**, 741-770
- Carey, C., W.R. Heyer, J. Wilkinson, R.A. Alford, J.W. Arntzen, T. Halliday, L. Hungerford, K.R. Lips, E.M. Middleton, S.A. Orchard, A.S. Rand. 2001. Amphibian declines and environmental change: use of remote sensing data to identify environmental correlates. *Conservation Biology*, **15**, 903-913.
- Caspersen, J.P., S.W. Pacala, J. Jenkins, G.C. Hurtt, P.R. Moorcroft and R.A. Birdsey, 2000. Contributions of land-use history to carbon accumulation in U.S. forests. *Science* **290**, 1148-1151.
- Cayan, D.R., S. Kammerdiener, M.D. Dettinger, J.M. Caprio, and D.H. Peterson, 2001. Changes in the onset of spring in the western United States. *Bulletin of the American Meteorological Society*, **82**, 399-415.
- Cesar, H. 2000. Coral Reefs: Their Functions, Threats and Economic Value, in H. Cesar (ed.) Collected Essays on the Economics of Coral Reefs, CORDIO, Kalmar University, Kalmar, Sweden.
- Cesar, H., L. Burke and L. Pet-Soede, 2003. *The Economics of Worldwide Coral Reef Degradation*. Cesar Environmental Economic Consulting, Arnhem, The Netherlands.
- Chavez, F., L. Ryan, S.E. Lluch-Cota and M. N̄iguen, 2003. From anchovies to sardines and back: Multidecadal change in the Pacific Ocean. *Science*, **229**(5604), 217-221.
- Clarkson, P.L. and D. Irish, 1991. Den collapse kills female polar bears and two newborn cubs. *Arctic*, **44**, 83-84.
- Coley, P.D., and T.M. Aide, 1991. Comparison of plant defenses in temperate and tropical broad-leaved forests. Pages 25-49 In: P.W. Price, T.M. Lewinsohn, G.W. Fernandes and W.W. Benson (eds.). *Plant-Animal Interactions: Evolutionary Ecology in Tropical and Temperate Regions*. John Wiley & Sons, Inc., New York.

- Coley, P.D., and J.A. Barone. 1996. Herbivory and plant defenses in tropical forests. *Annual Review of Ecology and Systematics*, **27**, 305-335.
- Comiso, J.C., C. L. Parkinson, R. Gersten, and L. Stock, 2008. Accelerated decline in the Arctic sea ice cover. *Geophysical Research Letters*, **35**, L01703
- Corn, P.S. 2003. Amphibian breeding and climate change: Importance of snow in the mountains. *Conservation Biology*, **17**, 622-625.
- Cotton, P., 2003. Avian migration phenology and global climate change, *Proceedings of the National Academy of Sciences*, **100**, 12219-12222.
- Cronin, M.A., S.C. Amstrup, G.W. Garner, and E.R. Vyse, 1991. Interspecific and intraspecific mitochondrial DNA variation in North American bears (Ursus). *Canadian Journal of Zoology*, **69**, 2985-2992.
- Crozier, L., 2004. Warmer winters drive butterfly range expansion by increasing survivorship. *Ecology*, **85**, 231-241.
- Crozier, L., 2003. Winter warming facilitates range expansion: cold tolerance of the butterfly *Atalopedes campestris*. *Oecologia*, **135**, 648-656.
- D'Antonio C.M. and L.A. Meyerson, 2002. Exotic plant species as problems and solutions in ecological restoration: a synthesis. *Restoration Ecology*, **10**, 703-13.
- Daszak, P., A.A. Cunningham, A.D. Hyatt, 2000. Emerging Infectious Diseases of Wildlife: Threats to Biodiversity and Human Health. *Science*, **287**, 443- 448.
- D'Elia, C.F., R.W. Buddemeier and S.V. Smith, 1991. Workshop on coral bleaching. Coral Reef Ecosystem and Global Change: Report of Proceedings. College Park, University of Maryland, Maryland Sea Grant UM-SG-TS-91-03.
- Deméré, T.A., A. Berta, and P.J. Adam, 2003. Pinnipedimorph evolutionary biogeography. *Bulletin of the American Museum of Natural History*, **279**, 32-76.
- Derocher, A.E., D. Andriashek, and I. Stirling, 1993. Terrestrial foraging by polar bears during the icefree period in western Hudson Bay. *Arctic*, **4**, 251-254.
- Derocher, A.E., R.A. Nelson, I. Stirling, M.A. Ramsay, 1990. Effects of fasting and feeding on serum urea creatinine levels in polar bears. *Marine Mammal Science*, **6**, 196-203.
- Derocher, A.E., Ø. Wiig, and G. Bangjord, 2000. Predation of Svalbard reindeer by polar bears. *Polar Biology*, **23**, 675-678.
- Derocher, A.E., N.J. Lunn and I. Stirling. 2004. Polar bears in a warming climate. *Integrative and Comparative Biology*, **44**, 163-176.

Diaz, H.F., J.K. Eischeid, C. Duncan, and R.S. Bradley, 2003. Variability of freezing levels, melting season indicators, and snow cover for selected high-elevation and continental regions in the last 50 years. *Climatic Change*, **59**, 33-52.

Dippner, J.W., G. Ottersen. 2001. Cod and climate variability in the Barents Sea. *Climate Research*, **17**, 73-82.

Dirnbock, T., S. Dullinger, G. Grabherr. 2003. A regional impact assessment of climate and land-use change on alpine vegetation. *Journal of Biogeography*, **30**, 401-417.

Donner, S.D., W.J. Skirving, C.M. Little, M. Oppenheimer and O. Hoegh-Guldberg, 2005. Global assessment of coral bleaching and required rates of adaptation under climate change. *Global Change Biology*, **11**, 1-15.

Drinkwater, K.F., 2005. The response of Atlantic cod (*Gadus morhua*) to future climate change. *ICES Journal of Marine Science* **62**,1327-1337.

Dukes, J.S., 2000: Will the rising atmospheric CO<sub>2</sub> concentration affect biological invaders? *Invasive Species in a Changing World*, H. Mooney and R. Hobbs, eds. Island Press, Washington, D.C., 95-113.

Dukes, J.S. and H.A. Mooney, 1999. Does global change increase the success of biological invaders? *Trends in Ecology and Evolution*, **14**(4), 135-139.

Dunn, P.O. and D. Winkler, 1999. Climate change has affected the breeding date of tree swallows throughout North America. *Proceedings of the Royal Society of London Bulletin*, **266**, 2487-2490.

Durner, G.M. and S.C. Amstrup, 1995. Movements of a polar bear from northern Alaska to northern Greenland. *Arctic*, **48**, 338-341.

Durner, G.M., S.C. Amstrup, and A.S. Fischbach, 2003. Habitat characteristics of polar bear terrestrial maternal den sites in northern Alaska. *Arctic*, **56**, 55-62.

Eakin et al. In Press. Caribbean Corals in Hot Water: Record-Setting Thermal Stress and Coral Bleaching in 2005. *Citation details to come*.

Ehrlich, P.R., D.D. Murphy, M.C. Singer, C.B. Sherwood, R.R. White and I.L. Brown, 1980. Extinction, reduction, stability and increase: The responses of checkerspot butterfly populations to the California drought. *Oecologia*, **46**, 101-105.

Elsner, J.B., 2006. Evidence in support of the climate change – Atlantic hurricane hypothesis. *Geophysical Research Letters*, **33**(16), L16705.

Emanuel, K., 2005. Increasing destructiveness of tropical cyclones over the past 30 years. *Nature*, **436**, 686-688.

- Fay, F.H., 1982. Ecology and biology of the Pacific walrus, *Odobenus rosmarus divergens* Illiger. *North American Fauna Series*. U.S. Fish and Wildlife Service. Washington, D.C. 275 pp.
- Federal Register, 2006. Rules and Regulations. Endangered and Threatened Species: Final Listing Determination for Elkhorn Coral and Staghorn Coral, 71 Fed. Reg. 26852.
- Ferguson, S.H., M.K. Taylor, E.W. Born, A. Rosing-Asvid, and F. Messier, 1999. Determinants of home range size for polar bears (*Ursus maritimus*). *Ecology Letters*, **2**, 311-318.
- Ferguson, S.H., I. Stirling and P. McLoughlin, 2005. Climate change and ringed seal (*Phoca hispida*) recruitment in western Hudson Bay. *Marine Mammal Science*, **21**, 121-135.
- Field, J.C., Boesch, D.F. Scavia, D. Buddemeier, R. Burkett, V.R. Cayan, D. Fogerty, M. Harwell, M. Howarth, R. Mason, C. Pietrafesa, L.J. Reed, D. Royer, T. Sallenger, A. Spranger, M. and J.G. Titus, 2001. Potential consequences of climate variability and change on coastal and marine resources. In: *Climate Change Impacts in the United States: Potential Consequences of Climate Change and Variability and Change*. Foundation Document. U.S. Global Change Research Program: Cambridge, UK, Cambridge University Press.
- Field, M.E., J.V. Gardner and D.B. Prior, 1999: Geometry and significance of stacked gullies on the northern California slope. *Marine Geology*, **154**, 271-286.
- Fields, P.A., J.B. Graham, R.H. Rosenblatt, G.N. Somero. 1993. Effects of expected global climate change on marine faunas. *TREE* 8: 361-367.
- Fischer, A.G., 1960. Latitudinal variation in organic diversity. *Evolution*, **14**, 64-81.
- Fitt, W.K. and M.E. Warner, 1995. Bleaching patterns of four species of Caribbean reef corals. *Biological Bulletin*, **189**, 298-307.
- Forister, M.L., and A.M. Shapiro, 2003. Climatic trends and advancing spring flight of butterflies in lowland California. *Global Change Biology*, **9**, 1130-1135.
- Franco, A.M.A., J.K. Hill, C. Kitschke, Y.C. Collingham, D.B. Roy, R. Fox, B. Huntley, and C.D. Thomas, 2006. Impacts of climate warming and habitat loss on extinctions at species' lowlatitude range boundaries. *Global Change Biology*, **12**, 1545-1553.
- Furnell, D.J., and D. Oolooyuk 1980. Polar bear predation on ringed seals in ice-free water. *Canadian Field-Naturalist*, **94**, 88-89.
- Garner, G.W., S.C. Amstrup, I. Stirling, and S.E. Belikov, 1994. Habitat considerations for polar bears in the North Pacific Rim. *Transactions of the North American Wildlife and Natural Resources Conference*, **29**, 111-120.
- Gibbs, J.P., and A.R. Breisch, 2001. Climate warming and calling phenology of frogs near Ithaca, New York, 1900-1999. *Conservation Biology*, **15**, 1175-1178.

- Glynn, P.W., 1984. Widespread coral mortality and the 1982-83 El Niño warming event. *Environmental Conservation*, **11**, 133-146.
- Glynn, P.W., 1993. Coral reef bleaching: ecological perspectives. *Coral Reefs*, **12**, 1-17.
- Gobbi, M., D. Fontaneto, and F. De Bernardi, 2006. Influence of climate changes on animal communities in space and time: the case of spider assemblages along an alpine glacier foreland. *Global Change Biology*, **12**, 1985-1992.
- Goreau, T.J. and R.M. Hayes, 1994. Coral bleaching and ocean “Hot spots.” *Ambio*, **23**, 176-180
- Government Accountability Office, 2007. Climate Change: Agencies should develop guidance for addressing the effects on Federal land and water resources. Government Accountability Office 07-863. Washington, DC.
- Grabherr, G., M. Gottfried, and H. Pauli. 1994. Climate effects on mountain plants. *Nature*, **369**, 448.
- Grebmeier, J.M., J.E. Overland, S.E. Moore, E.V. Farley, E.C. Carmack, L.W. Cooper, K.E. Frey, J.H. Helle, F.A. McLaughlin, and S.L. McNutt, 2006. A major ecosystem shift in the Northern Bering Sea. *Science*, **311**, 1461-1464.
- Groffman, P.M., J.S. Baron, T. Blett, A.J. Gold, I. Goodman, L.H. Gunderson, B.M. Levinson, M.A. Palmer, H.W. Paerl, G.D. Peterson, N.L. Poff, D.W. Rejeski, J.F. Reynolds, M.G. Turner, K.C. Weathers, J. Wiens, 2006. Ecological thresholds: the key to successful environmental management or an important concept with no practical application? *Ecosystems*, **9**, 1-13.
- Guralnick, R., 2007. Differential effects of past climate warming on mountain and flatland species distributions; a multispecies North American mammal assessment. *Global Ecol. Biogeogr.* **16**, 14-23.
- Hansen, J., 2006. Expert report submitted to the United States District Court, District of Vermont in regard to Case No. 2:05-CV-302 and 2:05-CV-304, Green Mountain Chrysler-Plymouth-Dodge-Jeep et al. v. Thomas W. Torti, Secretary of Vermont Agency of Natural Resources, et al.
- Hansen, J., L. Nazarenko, R. Ruedy, M. Sato, J. Willis, A. Del Genio, D. Koch, A. Lacis, K. Lo, S. Menon, T. Novakov, J. Perlwitz, G. Russell, G. A. Schmidt, and N. Tausnev. 2005. Earth's energy imbalance: confirmation and implications. *Science* 308:1431-1435.
- Harrington, C.R. 1968. Denning habits of the polar bear (*Ursus maritimus* Phipps). *Canadian Wildlife Service Report Series*, Number **5**. Ottawa.
- Harvell, C.D., C.E. Mitchell, J.R. Ward, S. Altizer, A.P. Dobson, R.S. Ostfeld, Hay, M.E., and W. Fenical, 1988. Marine plant-herbivore interactions: the ecology of chemical defense. *Annual Review of Ecology and Systematics*, **19**, 111-145.

Hayhoe, K., C. Wake, T.G. Huntington, L. Luo, M.D. Schwartz, J. Sheffield, E.F. Wood, B. Anderson, J. Bradbury, T.T. DeGaetano, and D. Wolfe, 2006: Past and future changes in climate and hydrological indicators in the U.S. Northeast. *Climate Dynamics*, **10**, doi:1007/s00382-006-0187-8.

Hayhoe, K. D. Cayan, C.B. Field, P.C. Frumhoff, E.P. Maurer, N.L. Miller, S.C. Moser, S.H. Schneider, K.N. Cahill, E.E. Cleland, L. Dale, R. Drapek, R.M. Hanemann, L.S. Kalkstein, J. Lenihan, C.K. Lunch, R.P. Neilson, S.C. Sheridan, and J.H. Verville, 2004: Emissions pathways, climate change, and impacts on California. *Proceedings of the National Academy of Sciences*, 101(34): 12422-12427.

Hays, G.C., A.J. Richardson and C. Robinson, 2005. Climate change and marine plankton. *Trends in Ecology and Evolution*, **20**, 337-344.

Helmuth, B., J.G. Kingsolver, E. Carrington, 2005. Biophysics, physiological ecology, and climate change: Does mechanism matter? *Annual Review of Physiology*, **67**, 177-201.

Helmuth, Brian, N. Mieszkowska, P. Moore, S.J. Hawkins. 2006. Living on the edge of two changing worlds: forecasting the responses of rocky intertidal ecosystems to climate change. *Annual Review of Ecology and Systematics*, **37**, 373-404.

Hicke, J. A., and D.B. Lobell, 2004. Spatiotemporal patterns of cropland area and net primary production in the central United States estimated from USDA agricultural information. *Geophysical Research Letters*, **31**, L20502, doi:10.1029/2004GL020927.

Hierro J.L., D. Villarreal, O. Eren, *et al.*, 2006. Disturbance facilitates invasion: the effects are stronger abroad than at home. *American Naturalist*, **168**, 144-56.

Hill, J.K., C.D. Thomas, R. Fox, M.G. Telfer, S.G. Willis, J. Asher, and B. Huntley, 2002. Responses of butterflies to twentieth century climate warming: Implications for future ranges. *Proceedings of the Royal Society Biological Sciences Series B*, **269**(1505): 2163-2171.

Hoegh-Guldberg, O., 1999. Climate change, coral bleaching and the future of the world's coral reefs. *Marine Freshwater Research*, **50**, 839-866.

Hoegh-Guldberg, O., R. Berkelmans, and J. Oliver, 1997: Coral bleaching: implications for the Great Barrier Reef Marine Park. *Proceedings of the Cooperative Research Centre Conference in Research and Reef Management*. CRC for the sustainable use of the Great Barrier Reef, 21-43.

Hoegh-Guldberg, O.; P.J. Mumby, A.J. Hooten, R.S. Stenek, P. Greenfield, E. Gomez, C.D. Harvell, P.F. Sale, A.J. Edwards, K. Caldeira, N. Knowlton, C.M. Eakin, R. Iglesias-Prieto, N. Muthiga, R.H. Bradbury, A. Dubi, and M.E. Hatziolos. 2007. Coral reefs under rapid climate change and acidification. *Science*, **318**, 1737-1742.

Holland, M.M., C.M. Bitz, and B. Tremblay, 2006: Future abrupt reductions in the summer Arctic sea ice. *Geophysical Research Letters*, **33**, L23503, doi:10.1029/2006GL028024.

- Hooff, R.C. and W.T. Peterson, 2006. Copepod biodiversity as an indicator of changes in ocean and climate conditions of the northern California Current. *Limnological and Oceanography*, **51**, 2607-2620.
- Hoyos, C.D., P.A. Agudelo, P.J. Webster, and J.A. Curry, 2006. Deconvolution of the factors contributing to the increase in global hurricane intensity. *Science*, **312**, 94-97.
- Hsieh, C., S.M. Glaser, A.J. Lucas, G. Sugihara. 2005. Distinguishing random environmental fluctuations from ecological catastrophes in the north Pacific Ocean. *Nature*, **435**, 336-340.
- Huenneke L.F., S.P.Hamburg, R. Koide, H.A.Mooney, P.M.Vitousek, 1990. Effects of soil resources on plant invasion and community structure in California serpentine grassland. *Ecology*, **71**, 478-491.
- Hughes, C.L., J.K. Hill, and C. Dytham, 2003. Evolutionary trade-offs between reproduction and dispersal in populations at expanding range boundaries. *Proceedings of the Royal Society Biological Sciences Series B*, **270**(Supplement 2), S147-S150.
- Hughes, T.P.; A.H. Baird; D.R. Bellwood; M. Card; S.R. Connolly; C. Folke; R. Grosberg; O. Hoegh-Guldberg; J.B.C. Jackson; J. Kleypas; J.M. Lough; P. Marshall; M. Nystrom; S.R. Palumbi; J.M. Pandolfi; B. Rosen; J. Roughgarden, 2003. Climate change, human impacts and the resilience of coral reefs. *Science* **301**, 929-933.
- Humphries, M.M., J. Umbanhowar, K.S. McCann, 2004. Bioenergetic prediction of climate change impacts on northern mammals. *Integrative and Comparative Biology*, **44**, 152-162
- Hunt Jr., G. A., P. Stabeno, G. Walters, E. Sinclair, R. D. Brodeur, J. M. Napp, N. A. Bond, 2002. Climate change and control of the southeastern Bering Sea pelagic ecosystem. *Deep Sea Research II*, **49**, 5821-5853.
- Inouye, D.W., 2007. Consequences of climate change for phenology, frost damage, and floral abundance of sub-alpine wildflowers. *Ecology*, *In press*.
- Inouye, D.W., 2007. Impacts of global warming on pollinators. *Wings*. **30**(2), 24-27.
- Inouye, D.W., B. Barr, K.B. Armitage, and B.D. Inouye, 2000. Climate change is affecting altitudinal migrants and hibernating species. *Proceedings of the National Academy of Sciences*, **97**, 1630-1633.
- Inouye, D.W., W.A. Calder, and N.M. Waser, 1991. The effect of floral abundance on feeder censuses of hummingbird abundance. *Condor*, **93**, 279-285.
- Inouye, D.W., M. Morales, and G. Dodge, 2002. Variation in timing and abundance of flowering by *Delphinium barbeyi* Huth (Ranunculaceae): the roles of snowpack, frost, and La Niña, in the context of climate change. *Oecologia*, **139**, 543-550.

Inouye, D.W., F. Saavedra, and W. Lee, 2003. Environmental influences on the phenology and abundance of flowering by *Androsace septentrionalis* L. (Primulaceae). *American Journal of Botany*, **90**, 905-910.

Inouye, D.W., and F.E. Wielgolaski, 2003. High altitude climates. Pages 195-214 In: M. D. Schwartz (ed.). *Phenology: an Integrative Environmental Science*. Kluwer Academic Publ, PO Box 17/3300 AA Dordrecht/Netherlands.

IPCC, 2007: *Climate Change 2007: The Physical Science Basis, Contribution from Working Group I to the Fourth Assessment Report, Policy Maker Summary*. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK.

IPCC, 2001: *Climate Change 2001: The Scientific Basis, Contribution from Working Group I to the Third Assessment Report*. Intergovernmental Panel for Climate Change. Cambridge University Press, Cambridge, UK.

IPCC, 1990: *Climate Change 1990: The Scientific Basis, Contribution from Working Group I to the First Assessment Report*. Intergovernmental Panel for Climate Change. Cambridge University Press, Cambridge, UK.

Iverson, L.R. and A.M. Prasad, 2001. Potential changes in tree species richness and forest community types following climate change. *Ecosystems*, **4**, 186-199.

Jablonski, D., 1993. The tropics as a source of evolutionary novelty through geological time. *Nature*, **364**, 142-144.

Janetos, A.C., R. Kasperson, T. Agardy, J. Alder, N. Ashe, R. Defries, and G. Nelson. 2005. *Chapter 28: Synthesis: Conditions and trends in systems and services, tradeoffs for human well-being, and implications for the future*. Conditions and Trends Volume. Millennium Ecosystem Assessment. R.J. Scholes, R. Hassan and N. Ashe (Eds). Island Press. Washington, DC. 823-834.

Jenni, L. and M. Kéry, 2003. Timing of autumn bird migration under climate change: advances in long-distance migrants, delays in short-distance migrants. *Proceedings of the Royal Society of Biological Science*, **270**(1523), 1467-1471, doi: 0.1098/rspb.2003.2394.

Johannessen, O. M., E. V. Shalina, and M. W. Miles, 1999. Satellite evidence for an Arctic sea ice cover in transformation. *Science*, **286**, 1937-1939.

Johnson, T.R., 1998. Climate change and Sierra Nevada snowpack. M.S. Thesis. University of California, Santa Barbara, Santa Barbara.

Jokiel, P.L. and S.L. Coles, 1990. Response of Hawaiian and other Indo-Pacific reef corals to elevated temperature. *Coral Reefs*, **8**, 155-162.

Joos, F., I. C. Prentice, J. I. House, 2002. Growth enhancement due to global atmospheric change as predicted by terrestrial ecosystem models: consistent with US forest inventory data. *Global Change Biology*, **8/4**, 299-303.

- Jonzen, N., A. Lindén, T. Ergon, E. Knudsen, J.O. Vik, D. Rubolini, D. Piacentini, C. Brinch, F. Spina, L. Karlsson, M. Stervander, A. Andersson, J. Waldenström, A. Lehikoinen, E. Edvardsen, R. Solvang, and N.C. Stenseth, 2006. Rapid advance of spring arrival dates in long-distance migratory birds. *Science*, **312**, 1959-1961.
- Karamouz, M., and B. Zahraie, 2004. Seasonal streamflow forecasting using snow budget and El Niño-Southern Oscillation climate signals: Application to the salt river basin in Arizona. *Journal of Hydrologic Engineering*, **9**, 523-533.
- Keeling, C.D., J.F.S. Chin, and T.P. Whorf, 1996. Increased activity of northern vegetation inferred from atmospheric CO<sub>2</sub> measurements. *Nature*, **382**(6587), 146-149.
- Kelly, B.P., 2001. Climate change and ice breeding pinnipeds. Pages 43-55 In: G.R. Walther, C.A. Burga and P.J. Edwards (eds). *"Fingerprints" of climate change: adapted behaviour and shifting species' ranges*. Kluwer Academic/Plenum Publishers, New York and London.
- Kelly, B. P., O. H. Badajos, M. Kunasranta, and J. R. Moran, 2006. Timing and re-interpretation of ringed seal surveys. *Final Report OCS Study MMS 2006-013*. Coastal Marine Institute, University of Alaska Fairbanks.
- Kendall, M.A., M.T. Burrows, A.J. Southward, S.J. Hawkins, 2004. Predicting the effects of marine climate change on the invertebrate prey of birds of rocky shores. *Ibis*, **146**, 40-47.
- Kennedy V.A., R.R. Twilley, J.A. Kleypas, J.H. Cowan, Jr. and S.R. Hare, 2002. Coastal and Marine Ecosystems and Global Climate Change: Potential Effects on U.S. Resources. Pew Center for Global Climate Change, Arlington, VA. 52pp.
- Kenny, A. and C. Mollmann, 2006. Towards integrated ecosystem assessments for the North and Baltic Seas: synthesizing GLOBEC research. *GLOBEC International Newsletter*, **12**(2), 64-65.
- Kiesecker, Joseph M., A.R. Blaustein, and L.K. Belden, 2001. Complex causes of amphibian population declines. *Nature*, **410**, 681-684.
- King, J.E., 1983. *Seals of the world, 2nd Edition*. Comstock Publishing Associates, Ithaca, NY.
- Kleypas, J.A., R.W. Buddemeier, D. Archer, J.P. Gattuso, C. Langdon, and B.N. Opdyke, 1999. Geochemical Consequences of Increased Atmospheric Carbon Dioxide on Coral Reefs. *Science*, **284**, 5411, 118.
- Kowalska, Z., 1965. Cross-breeding between a female European brown bear (*Ursus arctos*) and a male polar bear (*U. maritimus*) in the Logzkin Zoo. *Przegl Zool.*, **9**, 313-319.
- Kühl, M., R. N. Glud, J. Borum, R. Roberts, and S. Rysgaard, 2001. Photosynthetic performance of surface-associated algae below sea ice as measured with a pulse-amplitude-modulated (PAM) fluorometer and O<sub>2</sub> microsensors. *Marine Ecology Progress Series* 223:1-14.

Legendre, L., S.F. Ackley, G.S. Dieckmann, B. Gulliksen, R. Horner, T. Hoshiai, I.A. Melnikov, W.S. Reeburgh, M. Spindler, and C.W. Sullivan, 1992. Ecology of sea ice biota. *Polar Biology*, **12**, 429-444.

Lehikoinen, E., T.H. Sparks, M. Zalakevicius, 2004. Arrival and departure dates. *Advanced Ecological Research*, **35**, 1-31.

Lesica, P., and B. McCune, 2004. Decline of arctic-alpine plants at the southern margin of their range following a decade of climatic warming. *Journal of Vegetation Science*, **15**, 679-690.

Lesser, M.P., W.R. Stochaj, D.W. Tapley and J.M. Shick, 1990. Bleaching in coral reef anthozoans: effects of irradiance, ultraviolet radiation and temperature on the activities of protective enzymes against active oxygen. *Coral Reefs*, **8**, 225-232.

Li, W. and A.T. Smith, 2005. Dramatic decline of the threatened Ili pika, *Ochotona iliensis* (Lagomorpha: Ochotonida) in Xinjiang, China. *Oryx*, **39**, 30-34.

Lister, A.M., 2004. The impact of Quaternary ice ages on mammalian evolution. *Philosophical Transactions of the Royal Society of London*, **359**, 221-241.

Lobell, D.B., Ortiz-Monasterio, J. Ivan, Addams, C. Lee, and G.P. Asner, 2002. Soil, climate and management impacts on regional wheat productivity in Mexico from remote sensing. *Agricultural and Forest Meteorology*, **114**, 31-43.

Logan, J.A., J. Régnière, J.A. Powell, 2003. Assessing the impacts of global warming on forest pest dynamics. *Frontiers in Ecology and Environment*, **1**(3): 130-137.

Lovejoy, T.E. and L.J. Hannah, Eds., 2005. Climate change and biodiversity. Yale University Press, New Haven.

Lucht, W., I.C. Prentice, R.B. Myneni, S. Sitch, P. Friedlingstein, W. Cramer, P. Bousquet, W. Buermann, and B. Smith, 2002. Climatic control of the high-latitude vegetation greening trend and Pinatubo effect. *Science*, **296**(5573), 1687-1689.

Lumsden, S.E., T.F. Hourigan, A.W. Bruckner, G. Dorr (eds.), 2007: *The State of Deep Coral Ecosystems of the United States*. NOAA Technical Memorandum CRCP-3. Silver Spring MD. 365 pp.

Lunn, N. J. and I. Stirling, 1985. The significance of supplemental food to polar bears during the ice-free period of Hudson Bay. *Canadian Journal of Zoology*, **63**, 2291-2297.

Lunn, N. J. and I. Stirling, 2001. Climate change and polar bears: long-term ecological trends observed in Wapusk National Park. *Research Links*, **9**, 5-6.

Lydersen, C., and T.G. Smith, 1989. Avian predation on ringed seal *Phoca hispida* pups. *Polar Biology*, **9**, 489-490.

MacArthur, R.H., 1972. Geographical ecology: patterns in the distribution of species. Harper and Row, New York, New York, USA.

MacCracken, M., E. Barron, D. Easterling, B. Fetzer, and T. Karl, 2001. Scenarios for climate variability and change. Pages 13-71 *In*: N.A.S. Team, (ed.). *Climate change impacts on the United States: the potential consequences of climate variability and change*. Cambridge University Press, Cambridge.

Mackas, D.L., W.T. Peterson, M.D. Ohman, and B.E. Lavaniegos, 2006. Zooplankton anomalies in the California Current system before and during the warm ocean conditions of 2005. *Geophysical Research Letters*, **33**, L22S07, doi:10.1029/2006GL027930.

MacMynowski, D. and T. Root, 2007. Climate and the Complexity of Migratory Phenology: Sexes, Migratory Distance, and Arrival Distributions. *Biometeorology*, **51**, 361-373

Mann, M.E., and K.A. Emanuel, 2006. Atlantic hurricane trends linked to climate change. *Eos: Transactions of the American Geophysical Union*, **87**, 233-244.

Mantua, N.J, R.H. Hare, Yuan Zhang, J.M. Wallace, and R.C. Francis, 1997. A Pacific interdecadal climate oscillation with impacts on salmon production. *Bulletin of the American Meteorological Society*, **78**, 1069-1079)

Martinez-Meyer, E., Townsend, P.A., Hargrove, W.W. 2004. Ecological niches as stable distributional constraints on mammal species, with implications for Pleistocene extinctions and climate change projections for biodiversity. *Global Ecology and Biogeography*, **13**, 305-314.

McGowan, J.E., D.R.Cayan and L.M.Dorman. 1998. Climate-ocean variability and ecosystem response in the northeast Pacific. *Science*, **281**, 210-217.

McKee, K.L., I.A. Mendelsohn, and M.D. Materne, 2004. Acute salt marsh dieback in the Mississippi River deltaic plain: a drought-induced phenomenon? *Global Ecology and Biogeography*, **13**, 65-73.

McKenzie C., S. Schiff, R. Aravena, C. Kelly, V.S. Louis VS, 1998. Effect of temperature on production of CH<sub>4</sub> and CO<sub>2</sub> from peat in a natural and flooded boreal forest wetland. *Climate Change*, **40**, 247-66.

McLaughlin, J.F., J.J. Hellmann, C.L. Boggs, and P.R. Ehrlich, 2002. Climate change hastens population extinction. *Proceedings of the National Academy of Sciences*, **99**, 6070-6074.

Meehl, G.A., T.F. Stocker, W.D. Collins, P. Friedlingstein, A.T. Gaye, J.M. Gregory, A. Kitoh, R. Knutti, J.M. Murphy, A. Noda, S.C.B. Raper, I.G. Watterson, A.J. Weaver, and Z.C. Zhao, 2007. 2007: Global Climate Projections. *In*: S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and G.H. Miller, (eds.). *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge University Press, Cambridge, UK, and New York, NY, USA.

- Menzel, A., G. Jakobi, R. Ahas, H. Scheifinger, and N. Estrella, 2003. Variations of the climatological growing season (1951-2000) in Germany compared with other countries. *International Journal of Climatology*, **23**(7), 793-812.
- Messier, F., M.K. Taylor, and M.A. Ramsay, 1994. Denning ecology of polar bears in the Canadian Arctic archipelago. *Journal of Mammalogy*, **75**, 420-430.
- Mieszkowska, N., S.J. Hawkins, M.T. Burrows, M.A. Kendall, 2007. Long-term changes in the geographic distribution and population structures of *Osilinus lineatus* (Gastropoda: Trochidae) in Britain and Ireland. *Journal of the Marine Biological Association of the United Kingdom*, **87**, 537-545.
- Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Biodiversity Synthesis*. World Resources Institute, Washington, DC.
- Mieszkowska, N. M.A. Kendall, S.J. Hawkins, R. Leaper, P. Williamson, N.J. Hardman-Mountford, A.J. Southward, 2006. Changes in the range of some common rocky shore species in Britain – a response to climate change? *Hydrobiologia* **555**, 241-251.
- Mieszkowska, N., R. Leaper, P. Moore, M.A. Kendall, M.T. Burrows, D. Lear, E. Poloczanska, K. Hiscock, P.S. Moschella, R.C. Thompson, R.J. Herbert, D. Laffoley, J. Baxter, A.J. Southward, S.J. Hawkins. 2005. Marine biodiversity and climate change: Assessing and predicting the influence of climate change using intertidal rocky shore biota: Final report for United Kingdom funders. Marine Biological Association Occasional Publ. No. 20.
- Moore, P., 2004. Favoured aliens for the future. *Nature*, 427:594.
- Monson R.K., J.P. Sparks, T.N. Rosenstiel, L.E. Scott-Denton, T.E. Huxman, P.C. Harley, A.A. Turnipseed, S.P. Burns, B. Backlund, J. Hu, 2005. Climatic influences on net ecosystem CO<sub>2</sub> exchange during the transition from wintertime carbon source to springtime carbon sink in a high-elevation, subalpine forest. *Oecologia*, **146**, 130-147.
- Morris, J.T., P.V. Sundareshwar, C.T. Nietsch, B. Kjerfve, D.R. Cahoon, 2002. Responses of coastal wetlands to rising sea-levels. *Ecology*, **83**, 2869-2877
- Muller, E.M., C.S. Rogers, A.S. Spitzack and R. van Woesik, 2007. Bleaching increases likelihood of disease on *Acropora palmate* (Lamarck) in Hawksnest Bay, St John, U.S. Virgin Islands. *Coral Reefs*. **27**(1):191-195.
- National Research Council, 2007. *Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability*. The National Academies Press, Washington, D.C.
- National Research Council, 2006. *Status of Pollinators in North America*. National Academies Press, Washington, D.C.

- Nelson, G.C., E. Bennett, A. Asefaw Berhe, K. Cassman, R. DeFries, T. Dietz, A. Dobermann, A. Dobson, A. Janetos, M. Levy, D. Marco, N. Nakicenovic, B. O'Neill, R. Norgaard, G. Petschel-Held, D. Ojima, P. Pingali, R. Watson and M. Zurek, 2006: Anthropogenic drivers of ecosystem change: an overview. *Ecology and Society* 11 (2): 29.
- Nemani, R.R., M.A. White, P.E. Thornton, K. Nishida, S. Reddy, J. Jenkins, and S. Running, 2002. Recent trends in hydrologic balance have enhanced the terrestrial carbon sink in the United States. *Geophysical Research Letters*, **29**, 1468, doi:10.1029/2002GL014867.
- Orr, James C., V.J. Fabry, O. Aumont, L. Bopp, S.C. Doney, R.A. Feeley, A. Gnanadesikan, N. Gruber, A. Ishida, F. Joos, R.M. Key, K. Lindsay, E. Meier-Reimer, R. Matear, P. Monfray, A. Mouchet, R.G. Najjar, G.K. Plattner, K.B. Rodgers, C.L. Sabine, J.L. Sarmiento, R. Schlitzer, R.D. Slater, I.J. Totterdell, M-F. Weirig, Y. Yamanaka, A. Yool, 2005. Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms. *Nature*, **437**, 681-686.
- Overland, J.E., and M. Wang, 2007. Future regional sea ice declines. *Geophysical Research Letters*, **34**, L17705.
- Overpeck, J.T., B.L. Otto-Bliesner, G.H. Miller, D.R. Muhs, R.B. Alley, and J.T. Kiehl, 2006. Paleoclimatic evidence for future ice-sheet instability and rapid sea-level rise. *Science*, **311**, 1747-1750.
- Overpeck, J., K. Hughen, D. Hardy, R. Bradley, R. Case, M. Douglas, B. Finney, K. Gajewsky, G. Jacoby, A. Jennings, S. Lamoureux, A. Lasca, G. MacDonald, J. Moore, M. Retelle, S. Smith, A. Wolfe, and G. Zielinski, 1997. Arctic environmental change of the last four centuries. *Science*, **278** (5341), 1251-1256.
- Overpeck, J.T., M. Sturm, J.A. Francis, D.K. Perovich, M.C. Serreze, R. Benner, E.C. Carmack, S. Chapin III, S.C. Gerlach, L.C. Hamilton, L.D. Hinzman, M. Holland, H.P. Huntington, J.R. Key, A.H. Lloyd, G.M. MacDonald, J.McFadden, D. Noone, T.D. Prowse, P. Schlosser, C. Vörösmarty, 2005. Arctic System on Trajectory to New, Seasonally Ice-Free State. *Eos: Transactions of the American Geophysical Union*, **86**(34), 309, 312-313.
- Pandolfi, J.M., R.H. Bradbury, E. Sala, T.P. Hughes, K.A. Bjorndal, R.G. Cooke, D. McArdle, L. McClenachan, M.J.H. Newman, G. Paredes, R.R. Warner, J.B.C. Jackson, 2003. Global trajectories of the long-term decline of coral reef ecosystems. *Science*, **301**, 955-958.
- Park, R.A., M.S. Trehan, P.W. Mausel and R.C. Howe, 1989. *The Effects of Sea Level Rise on U.S. Coastal Wetlands*. U.S. EPA, Offices of Policy, Planning and Evaluations.
- Parmesan, C., 2006. Ecological and Evolutionary Responses to Recent Climate Change. *Annual Review of Ecology, Evolution and Systematics*, **37**, 637-669.
- Parmesan, C., 1996: Climate and species' range. *Nature* 382, 765-766.
- Parmesan, C. and G. Yohe, 2003. A Globally Coherent Fingerprint of Climate Change Impacts across Natural Systems. *Nature*, **421**, 37.

Parmesan, C., N. Ryrholm, C. Stefanescu, J.K. Hill, C.D. Thomas, H. Descimon, B. Huntley, L. Kaila, J. Kullberg, T. Tamaru, W.J. Tennent, J.A. Thomas, and M. Warren. 1999. Poleward shifts in geographical ranges of butterfly species associated with regional warming. *Nature*, **399**(6736), 579-583.

Pearcy, W.G., 1991. *Ocean ecology of north Pacific salmonids*. Washington State Sea Grant Program, The University of Washington Press, Seattle. 179 pp.

Pelejero, C., E. Calvo, M.T. McCulloch, J.F. Marshall, M.K. Gagan, J.M. Lough, B.N. Opdyke, 2005. *Science*, **309**, 2204-2207.

Peters, R.L. and T.E. Lovejoy. 1992. *Global Warming and Biological Diversity*. Yale University Press, New Haven, CT.

Peterson, W.T. and F.B. Schwing, 2003. A new climate regime in northeast Pacific ecosystems. *Geophysical Research Letters*, **38** (17), 1896, doi 10.1029/2003GL017528.

Petes, L.E., B.A. Menge, G.D. Murphy, 2007. Environmental stress decreases survival, growth, and reproduction in New Zealand mussels. *Journal of Experimental Marine Biology and Ecology*,: **351**, 83-91.

Poff, N.L., M.M. Brinson, J.W. Day, Jr. 2002. Aquatic ecosystems and global climate change: Potential impacts on inland freshwater and coastal wetland ecosystems in the United States. Pew Center on Global Climate Change. Washington, DC.

Polar Bear Specialist Group. 2006. Status of the polar bear. N. J. Lunn, and A. E. Derocher (eds.). Polar Bears: proceedings of the 14<sup>th</sup> working meeting of the IUCN/SSC Polar Bear Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK. 35-55.

Pounds, J.A., 2001. Climate and amphibian declines. *Nature*, **410**, 639-640

Pounds, J. Alan and M. Crump, 1994. Amphibian declines and climate disturbances: the case of the Golden Toad and the Harlequin Frog. *Conservation Biology*, **8**, 72-85.

Pounds, J.A., M.P.L. Fogden, and J.H. Campbell, 1999. Biological response to climate change on a tropical mountain. *Nature*, **398**, 611-615.

Pounds, J.A., M.R. Bustamante, L.A. Coloma, J.A. Consuegra, M.P.L. Fogden, P.N. Foster, E. La Marca, K.L. Masters, A. Merino-Viteri, R. Puschendorf, S.R. Ron, G.A. Sanchez-Azofeifa, C.J. Still, and B.E. Young, 2006. Widespread amphibian extinctions from epidemic disease driven by global warming. *Nature*, **439**(7073), 161-167.

Powell, J. A., and J.A. Logan, 2005. Insect seasonality: circle map analysis of temperature-driven life cycles. *Theoretical Population Biology*, **67**(3), 161-179.

Powell, J.A. and J.A. Logan, 2001. Ghost Forests, Global Warming, and the Mountain Pine Beetle (Coleoptera: Scolytidae). *American Entomologist*, **3**, 160-172.

- Powell, J.J., J. Jenkins, J. Logan, and B. Bentz, 2000. Seasonal temperature alone can synchronize life cycles. *Bulletin Mathematical Biology*, **62**, 977-998.
- Rahmstorf, S, 2007. A Semi-Empirical Approach to Projecting Future Sea-Level Rise. *Science*, **315** (5810), 368.
- Ramsay, M. A. and K. A. Hobson. 1991. Polar bears make little use of terrestrial food webs: evidence from stable isotope analysis. *Oecologia*, **86**, 598-600.
- Ramsay, M.A. and I. Stirling, 1988. Reproductive biology and ecology of female polar bears (*Ursus maritimus*). *Journal of Zoology* (London), **214**, 601-634.
- Ramsay, M.A. and I. Stirling, 1990. Fidelity of female polar bears to winter-den sites. *Journal of Mammalogy*, **71**, 233-236.
- Ravens, J., K. Caldeira, H. Elderfield, O. Hoegh-Guldberg, P. Liss, U. Riebesell, J. Shepard, C. Turley and A. Watson, 2005. *Ocean Acidification due to Increasing Carbon Dioxide*. The Royal Society, London, England.
- Reading, C.J., 1998. The effect of winter temperatures on the timing of breeding activity in the common toad *Bufo bufo*. *Oecologia*, **117**, 469-475.
- Rhymer, J.M. and D. Simberloff, 1996. Extinction by hybridization and introgression. *Annual Review of Ecology and Systematics*, **27**, 83-109.
- Richardson, A.J. and D.S. Shoeman, 2004. Climate impact on plankton ecosystems in the Northeast Atlantic. *Science*, **305**, 1609-1612.
- Rignot, E., and P. Kangaratnam, 2006. Changes in the velocity structure of the Greenland Ice Sheet. *Science*, **311**, 986-990.
- Roessig, J.M., C.M. Woodley, J.J. Cech and L.J. Hansen, 2004. Effects of global climate change on marine and estuarine fishes. *Reviews in Fish Biology and Fisheries*, **14**, 215-275.
- Roman, J., 2006. Diluting the founder effect: cryptic invasions expand a marine invader's range *Proceedings of the Royal Society*: **273**, 2453-2459
- Romme, W.H., J. Clement, J. Hicke, D. Kulakowski, L.H. MacDonald, T.L. Schoennagel, and T.T. Veblen, 2006. *Recent Forest Insect Outbreaks and Fire Risk in Colorado Forests: A Brief Synthesis of Relevant Research*.
- Root, T.L. and S.H. Schneider, 2006. Conservation and climate change: The challenges ahead. *Conservation Biology*, **20**(3), 706-708.
- Root, T.L., J.T. Price, K.R. Hall, S.H. Schneider, C. Rosenzweig and J.A. Pounds, 2003. Fingerprints of global warming on wild animals and plants. *Nature*, **421**, 57-60.

Root, T.L., D.P. MacMynowski, M. Mastrandrea, and S.H. Schneider. 2005. Human-modified temperatures induce species' changes: joint attribution. *Proceedings of the National Academy of Sciences*, **21**, 7465-7469.

Roots, E.F., 1989. Climate change: high latitude regions. *Climate Change*, **15**, 223-253.

Rothrock, D.A., J. Zhang and Y. Yu, 2003. The arctic ice thickness anomaly of the 1990s: A consistent view from observations and models. *Journal of Geophysical Research*, **108**(C3), 3083, doi:10.1029/2001JC001208.

Roy, D.B. and T.H. Sparks, 2000. Phenology of British butterflies and climate change. *Global Change Biology*, **6**, 407-416.

Saavedra, F., D.W. Inouye, M.V. Price, and J. Harte, 2003. Changes in flowering and abundance of *Delphinium nuttallianum* (Ranunculaceae) in response to a subalpine climate warming experiment. *Global Change Biology*, **9**, 885-894.

Sacks, W., D.Schimel, and R.Monson, 2007. Coupling between carbon cycling and climate in a high elevation, subalpine forest: a model-data fusion analysis. *Oecologia*, **151**(1), 54-68, doi:10.1007/s00442-006-0565-2.

Sæther, B.E., S. Engen, A.P. Møller, H. Weimerskirch, M.E. Visser, W. Fiedler, E. Matthysen, M.M. Lambrechts, R. Freckleton, A. Badyaev, P.H. Becker, J.E. Brommer, D. Bukacinski, M. Bukacinska, H. Christensen, J. Dickinson, C. du Fau, F. R. Gelbach, D. Heg, H. Hötter, J. Merilä, J.T. Nielsen, W. Rendell, D.L. Thomson, J. Török, and P. Van Hecke, 2005. Life history variation predicts the effect of demographic stochasticity on avian population dynamics. *American Naturalist*, **164**, 793-802.

Sagarin, R., J.P. Barry, S.E. Gilman and C.H. Baxter, 1999. Climate-related change in an intertidal community over short and long time scales. *Ecological Monographs*, **69**, 465-490.

Salathé, E. 2005. Downscaling simulations of future global climate with application to hydrologic modeling. *International Journal of Climate*, **25**, 419-436.

Samuel, M. D., 2002: Climate Warming and Disease Risks for Terrestrial and Marine Biota. *Science*, **296**, 2158-2162.

Scavia, D., J.C. Field, D.F. Boesch, R.W. Buddemeier, V. Burkett, D.R. Cayan, M. Fogarty, M.A. Harwell, R.W. Howarth, C. Mason, D.J. Reed, T.C. Royer, A.H. Sallenger, and J.G. Titus, 2002. Climate change impacts on US coastal and marine ecosystems. *Estuaries*, **25**, 149-164.

Scheffer, V.B., 1958. *Seals, sea lions and walruses: A review of the pinnipedia*. Stanford University Press, Stanford, CA.

Schneider, S.H. and T.L. Root, 2002. Introduction: the Rationale for the National Wildlife Federation Cohort of Young Scientists Studying Wildlife Responses to Climate Change. In: *Wildlife Responses to Climate Change: North American Case Studies*, Island Press Washington, DC. p. xi-xv.

- Schneider, S.H. and T.L. Root, 1996. Ecological implications of climate change will include surprises. *Biodiversity and Conservation*, **5**(9), 1109-1119.
- Scholze, M., W. Knorr, N.W. Arnell, I.C. Prentice, 2006. A climate-change risk analysis for world ecosystems. *Proceedings of the National Academy Of Sciences*, **103**, 13116-13120.
- Schwing, F.B., N.A. Bond, S.J. Bograd, T. Mitchell, M.A. Alexander and N. Mantua, 2006. Delayed coastal upwelling along the U.S. west coast in 2005: a historical perspective. *Geophysical Research Letters*, **33**, L22S01, doi:10.1029/2006GL026911.
- Schwartz M.D. and B.E. Reiter, 2000. Changes in North American spring. *International Journal of Climatology*, **20**, 929-932.
- Serreze, M. C., M. M. Holland, and J. Stroeve. 2007. Perspectives on the Arctic's shrinking sea-ice cover. *Science*, **315**,1533-1536.
- Serreze, M.C., J.E. Walsh, F.S. Chapin III, T. Osterkamp, M. Dyergerov, V. Romanovsky, W.C. Oechel, J. Morison, T. Zhang, and R.G. Barry, 2000. Observational evidence of recent change in the northern high latitude environment. *Climate Change*, **46**, 159-207.
- Sher, A.A. and L.A. Hyatt, 1999. The disturbed resource-flux invasion matrix: a new framework for patterns of plant invasion. *Biological Invasions*, **1**, 107-14.
- Short, F.T. and H. Neckles, 1999. The effects of global climate change on seagrasses. *Aquatic Botany*, **63**, 169-196.
- Singer, F.J. and K. Harter, 1996. Comparative effects of elk herbivory and 1988 fires on northern Yellowstone National Park grasslands. *Ecological Applications*, **6**(1), 185-200.
- Singer, M.C. and P.R. Ehrlich, 1979. Population dynamics of the checkerspot butterfly *Euphydryas editha*. *Fortschritte der Zoologie*, **25**, 53-60.
- Smith, T.G., 1985. Polar bears, *Ursus maritimus*, as predators of belugas, *Delphinapterus leucas*. *Canadian Field-Naturalist*, **99**, 71-75.
- Smith, T.G., 1980. Polar bear predation of ringed and bearded seals in the land-fast sea ice habitat. *Canadian Journal of Zoology*, **58**, 2201-2209.
- Snyder, M.A., L.C. Sloan, N.S. Diffenbaugh, and J.L. Bell, 2003. Future Climate Change and Upwelling in the California Current, *Geophysical Research Letters*, **30**(15), 1823-1827, 10.1029/2003GL017647.
- Southward, A.J., S.J. Hawkins and M.T. Burrows, 1995. Seventy years' observations of changes in distribution and abundance of zooplankton and intertidal organisms in the western English Channel in relation to rising sea temperature. *Journal of Thermal Biology*, **20**, 127-155.

- Sparks, T.H., D.B. Roy, and R.L.H. Dennis, 2005. The influence of temperature on migration of Lepidoptera into Britain. *Global Change Biology*, **11**(3), 507-514. doi:10.1111/j.1365-2486.2005.00910.x.
- Soto, C.G., 2002. The potential impacts of global climate change on marine protected areas. *Reviews in Fish Biology and Fisheries*, **11**, 181-195.
- Sriver, R. and M. Huber, 2006. Low frequency variability in globally integrated tropical cyclone power dissipation. *Geophysical Research Letters*, **33**, L11705, doi:10.1029/2006GL026167.
- Stanley, S.M., 1979. *Macroevolution, pattern and process*. W.H. Freeman, San Francisco.
- Stefanescu C., J. Peñuelas, and I. Filella, 2003. Effects of climatic change on the phenology of butterflies in the northwest Mediterranean Basin. *Global Change Biology*, **9** (10), 1494-1506.
- Stenseth, N.C. and A. Mysterud, 2002. Climate, changing phenology, and other life history traits: nonlinearity and match-mismatch to the environment. *Proceedings of the National Academy of Sciences*, **99**, 13379-13381.
- Stenseth, N.C., A. Mysterud, G. Ottersen, J.W. Hurrell, K.S. Chan, and M. Lima, 2002. Ecological effects of climate fluctuations. *Science*, **297**, 1292-1296.
- Stirling, I., 1974. Midsummer observations on the behavior of wild polar bears (*Ursus maritimus*). *Canadian Journal of Zoology*, **52**, 1191-1198.
- Stirling, I. and E.H. McEwan, 1975. The caloric value of whole ringed seals (*Phoca hispida*) in relation to polar bear (*Ursus maritimus*) ecology and hunting behavior. *Canadian Journal of Zoology*, **53**, 102-127.
- Stirling, I., and T.G. Smith, 2004. Implications of warm temperatures and an unusual rain event for the survival of ringed seals on the coast of Southeastern Baffin Island. *Arctic*, **57**, 59-67.
- Stirling, I. and T.G. Smith, 1975. Interrelationships of Arctic Ocean mammals in the sea ice habitat. *Circumpolar Conference on Northern Ecology*, **2**, 129-136.
- Stirling, I. and D. Andriashek, 1992. Terrestrial maternity denning of polar bears in the eastern Beaufort Sea area. *Arctic*, **45**, 363-366.
- Stirling, I. and W.R. Archibald, 1977. Aspects of predation of seals by polar bears. *Journal of Fisheries Research Board of Canada*, **34**, 1126-1129.
- Stirling, I., and A.E. Derocher, 1993. Possible impacts of climate warming on polar bears. *Arctic*, **46**, 240-245.
- Stirling, I., N.J. Lunn and J. Iacozza, 1999. Long-term trends in the population ecology of polar bears in western Hudson Bay in relation to climate change. *Arctic*, **52**, 294-306.

- Stirling, I. and N.A. Ørjstland, 1995. Relationships between estimates of ringed seal and polar bear populations in the Canadian Arctic. *Canadian Journal of Fisheries and Aquatic Sciences*, **52**, 2595-2612.
- Stone, R. S., E. G. Dutton, J. M. Harris and D. Longenecker, 2002. Earlier spring snowmelt in northern Alaska as an indicator of climate change. *Journal of Geophysical Research – Atmosphere*, **107**(D9&10/ACL10):1-15. doi: 10.1029/2000JD000286.
- Stroeve, J.C., M.C. Serreze, F. Fetterer, T. Aretter, W. Meier, J. Maslanik and K. Knowles, 2005. Tracking the Arctic's shrinking ice cover: Another extreme September minimum in 2004. *Geophysical Research Letters*, **32**, L04501, doi:10.1029/2400GL021810.
- Stroeve, J., M.M. Holland, W. Meier, T. Scambos, and M. Serreze, 2007. Arctic sea ice decline: Faster than forecast, *Geophysical Research Letters*, **34**, L09501, doi:10.1029/2007GL029703.
- Stuart, S.N., J.S. Chanson, N.A. Cox, B.E. Young, A.S.L. Rodrigues, D.L. Fischman, R.W. Waller, 2004. Status and trends of amphibian declines and extinctions worldwide. *Science*, **306**, 1783-1786.
- Swetnam, T.W., and J.L. Betancourt, 1998. Mesoscale disturbance and ecological response to decadal climatic variability in the American Southwest. *Journal of Climate*, **11**, 3128-3147.
- Sydeman, W.J., R.W. Bradley, P. Warzybok, C.L. Abraham, J. Jahncke, J.D. Hyrenbach, V.Kousky, J.M. Hipfner and M.D. Ohman, 2006. Planktivorous auklet *Ptychoramphus aleuticus* responses to ocean climate, 2005: unusual atmospheric blocking? *Geophysical Research Letters*, **33**, L22S09, doi:10.1029/2006GL026736.
- Talbot, S.L. and G.F. Shields, 1996. Phylogeography of brown bears (*Ursus arctos*) of Alaska and parapatry within the Ursidae. *Molecular Phylogenetics and Evolution*, **5**, 477-494.
- Taugbøl, G. 1984. Ringed seal thermoregulation, energy balance and development in early life, a study of *Pusa hispida* in Kongsfj., Svalbard. Zoology Thesis. University of Oslo, Norway.
- Tebaldi, C., K. Hayhoe, J.M. Arblaster, and G. A. Meehl, 2006: Going to the extremes; An intercomparison of model-simulated historical and future changes in extreme events, *Climatic Change*, **79**, 185-211.
- Thomas, C.D., M.C. Singer and D. Boughton, 1996. Catastrophic extinction of population sources in a butterfly metapopulation. *American Naturalist*, **148**, 957-975.
- Thomas, D.N., and G. S. Dieckmann, 2002. Antarctic Sea Ice – a Habitat for Extremophiles. *Science*, **295**, 641-644.
- Thompson, R.C., T.P. Crowe and S.J. Hawkins, 2002. Rocky intertidal communities: past environmental changes, present status and predictions for the next 25 years. *Environmental Conservation*, **29**, 168-191.

Tynan, C.T. and D.P. DeMaster, 1997. Observations and predictions of arctic climatic change: potential effects on marine mammals. *Arctic*, **50**, 308-322.

Vermeij, G.J., 1978. *Biogeography and adaptation*. Harvard University Press, Cambridge, Massachusetts, USA.

Vila, M., J.D. Corbin, J.S. Dukes, J. Pino, and S.D. Smith, S.D. In press. Linking plant invasions to global environmental change. *In: J. Canadell, D. Pataki, L. Pitelka, (eds.). Terrestrial Ecosystems in a Changing World*, Springer, New York.

Visser, M.E. and C. Both, 2005. Shifts in phenology due to global climate change: the need for a yardstick. *Proceedings of the Royal Society*, **272**, 2561-2569.

Visser M.E., L.J.M. Holleman and P. Gienapp, 2006. Shifts in caterpillar biomass phenology due to climate change and its impact on the breeding biology of an insectivorous bird. *Oecologia*, **147**, 164-172.

Visser M.E., C. Both and M.M. Lambrechts, 2004. Global climate change leads to mistimed avian reproduction. *Advances in Ecological Research*, **35**, 89-110.

Von Holle, B., and G. Motzkin, 2007. Historical land use and environmental determinants of nonnative plant distribution in coastal southern New England. *Biological Conservation*, **136**, 33-43.

Waits, L.P., S.L. Talbot, R.H. Ward, and G.F. Shields, 1998. Mitochondrial DNA phylogeography of the North American brown bear and implications for conservation. *Conservation Biology*, **12**, 408-417.

Wake, D.B., 2007. Climate change implicated in amphibian and lizard declines. *Proceedings of the National Academy Of Science*, **104**, 8201-8202.

Walther, G.R., E. Post, P. Convey, A. Menzel, C. Parmesan, T.J.C. Beebee, J.M. Fromentin, O. Hoegh-Guldberg, and F. Bairlein, 2002. Ecological responses to recent climate change. *Nature*, **416**, 389-395.

Ward, J. and K. Lafferty. Biology The Elusive Baseline of Marine Disease: Are Diseases in Ocean Ecosystems Increasing? *Plos Biology*, **2**, 0542-0547.

Wielgolaski, F.E., and D.W. Inouye, 2003. High latitude climates. Pages 175-194 *In: M. D. Schwartz (ed.). Phenology: an Integrative Environmental Science*. Kluwer Academic Publ, PO Box 17/3300 AA Dordrecht/Netherlands.

Wilson, R.J., D. Gutiérrez, J. Gutiérrez, and V.J. Monserrat, 2007. An elevational shift in butterfly species richness and composition accompanying recent climate change. *Global Change Biology* **13**: 1873-1887.

Winkler, D.W., P.O. Dunn, and C.E. McCulloch. Predicting the effects of climate change on avian life-history traits. *Proceedings, National Academy of Sciences*, **99**, 13595-13599.

- Wolfe, D.W., M.D., Schwartz, A.N. Lakso, Y. Otsuki, R.M. Pool, N. Shaulis, 2005. Climate change and shifts in spring phenology of three horticultural woody perennials in northeastern USA. *International Journal of Biometeorology*, **49**(5), 303-309.
- Yates, K.K. and R.B. Halley, 2006. CO<sub>3</sub><sup>2-</sup> concentration and pCO<sub>2</sub> thresholds for calcification and dissolution on the Molokai reef flat, Hawaii. *Biogeosciences*, **3**, 1-13.
- Zhou, L. M., C.J. Tucker, R.K. Kaufmann, D. Slayback, N.V. Shabanov, and R.B. Myneni. 2001. Variations in northern vegetation activity inferred from satellite data of vegetation index during 1981 to 1999. *Journal of Geophysical Research – Atmospheres*, **106**(D17), 20069-20083.
- Ziska, LH and K. George, 2004: Rising carbon dioxide and invasive, noxious plants: potential threats and consequences. *Water Resources Review* **16**: 427-46.