

NCEAS/NESCent Working Group:

Genetic monitoring (GeM): Development of tools for conservation and management

1a. Publications

Laikre, L., and 20 others. 2010. Neglect of genetic diversity in implementation of the Convention on Biological Diversity. *Conservation Biology* 24:86-88.

Tallmon, D.A., D. Gregovich, R. Waples, C. S. Baker, J. Jackson., B. Taylor, E. Archer, K. K. Martien, F. W. Allendorf, and M.K. Schwartz. 2010. When are genetic methods useful for estimating contemporary abundance and detecting population trends? *Molecular Ecology Resources* 10: 684–692.

Laikre, L., M.K. Schwartz, R.S. Waples, N. Ryman, and The GeM Working Group. 2010. Compromising genetic diversity in the wild: unmonitored large-scale release of plants and animals. *Trends in Ecology and Evolution* 25:520-529.

1b. Publications in progress

Gregovich, D., D. A Tallmon, R.S. Waples, B. Taylor, and M.K. Schwartz. In revision. Detecting population recovery using one-sample effective population size estimates.

Hansen, M.M., I. Olivieri, D.M. Waller, E.E. Nielsen, and The GeM Working Group. In preparation. Monitoring adaptive genetic responses to environmental change. *Molecular Ecology* (invited review).

Jackson, J., L. Laikre, and The GeM Working Group. In preparation. Archiving for genetic monitoring: today's collections are the historical records of tomorrow. *Conservation Biology*.

Stetz, J.B., K.C. Kendall, A. Macleod, C.D. Vojta, and The GeM Working Group. How can genetics be used to monitor wildlife populations? In preparation. *Journal of Fish and Wildlife Management*.

Neel, M.C., K. McKelvey, R. S. Waples, N. Ryman, M. W. Lloyd, R. Short Bull, F. W. Allendorf, M. K. Schwartz. In preparation. Single sample estimates of effective population size in continuously distributed populations can be misleading.

Tallmon, D.A., D. Gregovich, R. Waples, C. S. Baker, F. W. Allendorf, and M.K. Schwartz. In preparation. Effects of age structure and sampling on one-sample estimates of N_e . *American Naturalist*.

1c. Papers that acknowledge GeM Working Group

- Hansen, M. M., D. J. Fraser, et al. 2009. Sixty years of anthropogenic pressure: a spatio-temporal genetic analysis of brown trout populations subject to stocking and population declines. *Molecular Ecology* 18: 2549-2562.
- Laikre, L. 2010. Genetic diversity is overlooked in international conservation policy implementation. *Conservation Genetics* 11:349-354.
- Luikart, G., N. Ryman, D. A. Tallmon, M.K. Schwartz, and F. W. Allendorf. 2010. Estimation of census and effective population size: the increasing usefulness of DNA-based approaches. *Conservation Genetics* 11:355-373.
- Waples, R.S., and C. Do. 2010. Linkage disequilibrium estimates of contemporary N_e using highly variable genetic markers: a largely untapped resource for applied conservation and evolution. *Evol. Appl.* 3:244-262,
- Waples, R.S., and J.R. Faulkner. 2009. Modelling evolutionary processes in small populations: not as ideal as you think. *Molecular Ecology* 18:1834-1847
- Noel, F. et al. 2010. Interaction of climate, demography and genetics: a ten-year study of *Brassica insularis*, a narrow endemic Mediterranean species. *Conservation Genetics* 11:509-526.

2. Presentations

- Allendorf, F.W. 2007. Monitoring genetic change in natural populations. Ecological Society of Australia. Annual Meeting, Perth, Western Australia. Nov 2007.
- Schwartz, M.K. 2008. Genetic monitoring of carnivores. Grimso Biological Field Station, Sweden. February 2008.
- Schwartz, M.K. 2009. How well do effective population size estimators reflect changes in abundance. International Marine Conservation Congress, Washington D.C., May 2009.
- Laikre, L. 2009. Who cares about the genes? Genetic diversity is neglected in international conservation policy. ESF Conservation Genetics Conference, Trondheim, 23-26 May 2009.
- Allendorf, F.W. Genetic monitoring of natural populations. Recent Advances in Conservation Genetics Workshop. White Oak, Florida. February 2010.

Laikre, L. 2010. Targets and indicators for monitoring genetic variation for resilience and future adaptation. Conference of the Parties to the Convention on Biological Diversity. Nagoya, Japan, 18-29 October 2010

5. Student training

Conservation Genetics Module for USDA Forest Service national continuing education class, Wildlife Habitat Conservation and Management, March 2009. Students were wildlife professionals in the Forest Service.

8. Other outreach efforts, such as congressional visits, public lectures, or participation in public hearings

Wikipedia: http://en.wikipedia.org/wiki/Genetic_monitoring

Genetic Monitoring for Managers:

This website provides natural resource managers with current knowledge about genetic monitoring (GeM), and gives examples of how genetic methods have been used to meet a variety of monitoring objectives. We describe proper techniques for collecting and archiving genetic material and provide practical information on criteria for selecting a laboratory to conduct genetic analyses. The glossary and references are geared toward managers who do not have a genetics background.

http://alaska.fws.gov/gem/mainPage_1.htm