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EDUCATION

The University of Montana, Missoula. 1994. M.S., Wildlife Biology. George E. Bright Memorial Fellowship recipient, 1992.

Willamette University, Salem, OR. 1989. B.A., magna cum laude, Biology and Environmental Science.

EXPERIENCE

Ecologist/GIS analyst. 1995-present. *Spatial Analysis Lab, Montana Natural Heritage Program, The University of Montana.* Worked on a wide variety of GIS projects. Involved in all aspects, from designing projects and writing proposals to preparing metadata, final reports, and websites.

- Currently working to update and document MT-NWI++, a value-added wetlands database for the state (Hahn et al. 2016). Documentation will include metadata, user's guides, and a dedicated webpage.
- Provide technical writing and editing support for a variety of Heritage projects as requested.
- Worked on a number of other projects relating to wetlands, including GIS selection of sites for field sampling in 2017-2018; comparing wetland patterns in relatively undisturbed vs. disturbed landscapes in the Prairie Pothole Region (Hart and Vance 2017); and assessing wetland condition in the Blackfoot and Swan subbasins (Hart et al. 2015).
- Provided GIS support to the USDA Forest Service Northern Region's Integrated Restoration and Protection Strategy. Used ArcGIS to score subwatersheds according to opportunities for restoration and protection of resources such as whitebark pine, grizzly bear, and aspen. Developed project website and coordinated preparation of technical report (Reynolds et al. 2016).
- Working with Tom Martin and others, evaluated population health of breeding birds in relation to forest fragmentation at 41 sites across the Lower 48 states (Lloyd et al. 2005, 2006).
- Technical editor for Springer-Verlag's *A Guidebook for Integrated Ecological Assessments* (Jensen and Bourgeron 2001).
- Project coordinator for Montana Gap Analysis, a statewide evaluation of biological diversity using a GIS (Redmond et al. 1998).

Other Experience.

- **Instructor.** 1994-96. *Continuing Education, The University of Montana, "GIS and Remote Sensing: Applications for Fisheries and Wildlife".*
- **Research assistant.** 1992-94. *MT Cooperative Wildlife Research Unit, The University of Montana.* Ground-truthed satellite data, coordinated information between the university and cooperating agencies, created GIS data layers and used them as inputs to models of wildlife habitat and species distribution.
- **Teaching assistant.** 1991. *Dept of Biological Sciences, The University of Montana.* Animal Behavior course.
- **Spotted owl coordinator.** 1990-91. *Umpqua National Forest, Tiller R.D., Tiller, OR.* Served as project leader, planning and implementing the district's spotted owl program.
- **Forestry technician.** 1984-89. *Umpqua National Forest, Tiller R.D., Tiller, OR.* Summer positions in the silviculture, timber management, and wildlife departments.

PUBLICATIONS AND REPORTS

Fisher, F.B., J.C. Winne, M.M. Thornton, T.P. Tady, Z. Ma, M.M. Hart, and R.L. Redmond. 1998. Montana land cover atlas. Unpubl. report. Montana Cooperative Wildlife Research Unit, The University of Montana, Missoula. viii + 50 p.

Griffin, S.C., B.L. Walker, and M.M. Hart. 2003. Using GIS to guide field surveys for timberline sparrows in northwestern Montana. *Northwest Science* 77:54-63.

- Hahn, J., C. Tobalske, M. Hart, and L. Vance. 2016. Montana wetland ecological and vulnerability prioritization. Report to Montana Department of Environmental Quality and Montana Fish, Wildlife, and Parks. Montana Natural Heritage Program, Helena, MT. 41 p. + appendices.
- Hart, M., and L. Vance. 2017. Developing a landscape-level reference standard wetland profile for the Prairie Pothole Region, Montana. Report to the US EPA. Montana Natural Heritage Program, Helena, MT. 27 p.
- Hart, M., L. Vance, K. Newlon, J. Chutz, and J. Hahn. 2015. Estimating wetland condition locally: an intensification study in the Blackfoot and Swan River watersheds. Report to the US EPA. Montana Natural Heritage Program, Helena, MT. 52 p. + appendices.
- Hart, M.M., W.A. Williams, P.C. Thornton, K.P. McLaughlin, C.M. Tobalske, B.A. Maxell, D.P. Hendricks, C.R. Peterson, and R.L. Redmond. 1998. Montana atlas of terrestrial vertebrates. Unpubl. report. Montana Cooperative Wildlife Research Unit, The University of Montana, Missoula. vii + 1302 p.
- Hart, M.M. 1994. Past and present vegetative and wildlife diversity in relation to an existing reserve network: a GIS evaluation of the Seeley-Swan landscape, northwestern Montana. Unpubl. MS thesis. University of Montana, Missoula, Montana. 288 p.
- Hart, M. and P. Lesica. 1994. Accuracy of early stand exam age estimates in the Swan Valley of western Montana. Research Note INT-422, USDA Forest Service, Ogden, UT. 4 p.
- Jensen, M., K. Reynolds, U. Langner, and M. Hart. 2009. Application of logic and decision models in sustainable ecosystem management. In: Proceedings of the 42nd Hawaii International Conference on System Sciences, HICSS, Jan. 5-8, 2009. 10 p.
- Lloyd, P., T.E. Martin, R.L. Redmond, M.M. Hart, U. Langner, and R.D. Bassar. 2006. Assessing the influence of spatial scale on the relationship between avian nesting success and forest fragmentation: a case study. Pp. 255-269 in: J. Wu, K.B. Jones, H. Li, and O. Loucks, eds. *Scaling and Uncertainty Analysis in Ecology: Methods and Applications*. Springer, Netherlands.
- Lloyd, P., T.E. Martin, R.L. Redmond, U. Langner, and M.M. Hart. 2005. Linking demographic effects of habitat fragmentation across landscapes to continental source-sink dynamics. *Ecological Applications* 15:1504-1514.
- Luna, T., L. Vance, and M. Hart. 2012. Restoration guidelines for wetlands of the Western Prairie Pothole Region. Report to the US EPA. Montana Natural Heritage Program, Helena, MT. 123 p.+ appendices.
- Ma, Z., M.M. Hart, and R.L. Redmond. 2001. Mapping vegetation across large geographic areas: integration of remote sensing and GIS to classify multisource data. *Photogrammetric Engineering & Remote Sensing* 67(3):295-307.
- Redmond, R.L., M.M. Hart, J.C. Winne, W.A. Williams, P.C. Thornton, Z. Ma, C.M. Tobalske, M.M. Thornton, K.P. McLaughlin, T.P. Tady, F.B. Fisher, S.W. Running. 1998. The Montana Gap Analysis Project: final report. Unpubl. report. Montana Cooperative Wildlife Research Unit, The University of Montana, Missoula. xiii + 136 p. + appendices.
- Reynolds, K., B. Bollenbacher, C. Fisher, M. Hart, M. Manning, E. Henderson, B. Sims. 2016. Decision support for the integrated restoration and protection strategy of the Forest Service, Northern Region. FS-1031. Washington, DC: U.S. Department of Agriculture, Forest Service. 182 p.
- Schumacher, J.V., R.L. Redmond, M.M. Hart, and M.E. Jensen. 2001. Footprints on federal lands: GIS modeling of human use of public lands. P. 27 in: N. Sappington, ed. *ESRI Map Book*, vol. 16. ESRI, Inc., Redlands, CA.
- Schumacher, J.V., R.L. Redmond, M.M. Hart, and M.E. Jensen. 2001. Mapping patterns of human use and potential resource conflicts on public lands. Pp. 436-443 in: Jensen, M.E., and P.S. Bourgeron, eds. *A Guidebook for Integrated Ecological Assessments*. Springer-Verlag, New York, NY.
- Schumacher, J.V., R.L. Redmond, M.M. Hart, and M.E. Jensen. 2000. Mapping patterns of human use and potential resource conflicts on public lands. *Environmental Monitoring and Assessment* 64:127-137.