

Education & Experience Applicable to Rare Species Surveys

Sigrun Gadwa's education and experience qualify her for surveys of rare plants, provided they belong to a taxonomic group with which she is familiar. She has submitted 23 rare plant species records to the CT Natural Diversity Database and has led about twelve field trips for the CT Botanical Society. She has conducted twelve rare plant NDDB surveys for CTDEEP since 2018. She also takes part in other volunteer rare plant surveys for Native Plant Trust.

Whether assessing the status of a rare plant or a rare turtle species, she anticipates likely habitat changes and recommends management measures, taking multiple factors into account. What are the limiting physical factors for the species in a given habitat? (e.g. temperature, soil pH, shade level, or humidity) What are the species' life history traits, fecundity, and dispersal mode? Is it able to compete successfully with other species during its principal period of growth or activity? She is alert for invasive plants with potential for rapid spread. She also considers habitat connectivity, and potential for immigration/gene flow to bolster a tenuous population.

Her qualifications for rare turtle surveys are grounded in extensive field experience with three Connecticut-listed special-concern species.: *Terrapene c. carolina* (Eastern box turtle), *Clemmys insculpta* (wood turtle), and *Clemmys guttata* (spotted turtle). Since childhood, Ms. Gadwa has observed turtle behavior, habitat usage, and morphological variations. She has personally submitted seven wood turtle records & 19 eastern box turtles records to CTDEEP. As coordinator of the Quinnipiac River Watershed Association (QRWA) Turtle Crossing Program from 1998 to 2018, she helped volunteers and other environmental professionals prepare many thorough, informative NDDB records. For a multi-year wood turtle study along the Ten Mile River, herpetologist Hank Gruner provided guidance for search strategy, age-determination, measurement, and notching. This work was done under a CTDEEP scientific collector's permit. CTDEEP received copies of record forms, data summaries, and study findings, as well as copies of outreach articles, the QRWA brochure on turtle conservation, and management recommendations.

Coursework at Brown University and her MS program UConn Storrs (Ecology & Evolutionary Biology) provided a strong foundation in organismal biology, field ecology methods, and plant systematics, and also the theoretical background needed to understand the conservation challenges faced by these rare species. Concepts like carrying capacity, fecundity, fragmentation, and competition are applicable to both plants and animals. Courses in community ecology, population genetics, plant ecology, mathematical ecology, and phytosociology were especially valuable.

Her thesis research emphasized the role of life history traits and dispersal modes in determining plant colonization patterns along pond shorelines. These are key elements in her perspective as an ecologist, also relevant to assessment of threats to rare fauna species.

Ongoing reading includes journal articles and Master's theses on these three rare turtles. *Turtles of the United States and Canada* by Karl Ernst et al. and several books written or edited by Dr. Michael Klemens are comprehensive references.