

**Translocation and Captive-Rearing Dissertation Research**  
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In collaboration with the U.S. Geological Survey's ongoing giant gartersnake (*Thamnophis gigas*, **Figure 1.**) research in the Natomas Basin, this dissertation project will investigate the **movement behavior and activity patterns of giant gartersnakes and their suitability for translocation and captive-rearing.** The infrastructure of restored wetlands and rice agriculture in the Northern and Central portions of the Natomas Basin support stable relatively large populations of giant gartersnakes. In 2014 habitat restoration efforts were completed in the Southern Basin to establish a marsh network adjacent to Fisherman's Lake. The restored marshes provide suitable habitat for giant gartersnakes but are largely unoccupied due to the low density of snakes in the surrounding area and inhospitable habitat separating the Northern and Central populations.



Figure 1. Giant gartersnake. Richard Porter, californiasherps.com

Wild-caught giant gartersnakes from the Central Basin along with captive-reared neonates will be translocated to the restored wetlands in the Southern Basin (**Figure 2.**). Radio telemetry will be used to monitor the survival, movement behavior and activity patterns of translocated snakes to determine how giant gartersnakes respond to translocation and whether or not larger scale translocations would benefit the species. **The research will also be used to investigate how giant gartersnakes utilize the restoration site, and whether the origin habitat of the snake (wetland, rice agriculture or captive raised) influences behavior following translocation.**

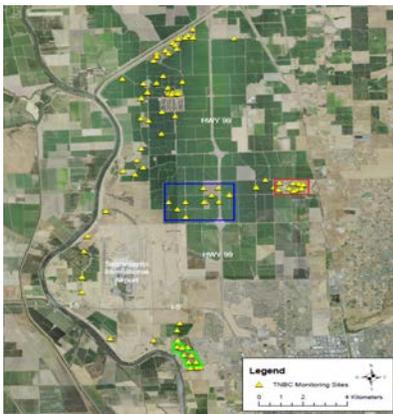


Figure 2. Aerial View of the Natomas Basin with Central Donor sites (Red and Blue) and the restored recipient site (Green).

The first year of the translocation project as well as the captive-rearing portion of the research is currently funded by the U.S. Fish and Wildlife Service and the U.S. Geological Survey. Funding is still needed for the following two years of the translocation project. The remaining total amount of funding needed is \$39,000.00, which will be used to purchase additional radio transmitters for 2019 and 2020 and the surgical procedures to implant, replace and remove transmitters from telemetry snakes (**Table 1.**). Snakes will be translocated in 2019 after a year of collecting baseline telemetry data for snakes in their origin sites. **Support for the 2019 and 2020 seasons will make it possible to have robust translocation and control groups of snakes and allow for between and among year comparisons.**

Giant gartersnakes are currently extirpated from the lower 2/3 of their range in the San Joaquin and Tulare basins, and it is likely that a translocation of snakes from Northern populations or introduction of captive-reared individuals into restored sites will be necessary to restore the extirpated populations. The proposed dissertation research will **assess the success of these methods before a long-distance translocation is attempted while also accomplishing conservation goals in the Natomas Basin by assisting in the colonization of the restored Southern wetlands.**

Items	Cost per Unit	Quantity	Total Cost for 2019	Total Cost for 2020
Radio Transmitters	\$150.00	60	\$6,000.00	\$3,000.00
Implantation Surgery	\$300.00	40	\$6,000.00	\$6,000.00
Replacement Surgery	\$300.00	20	\$0.00	\$6,000.00
Removal Surgery	\$300.00	40	\$0.00	\$12,000.00

**Table 1.** Itemized costs remaining for the 2019 and 2020 seasons.