Title: Decision support modeling of environmental flow releases and management options for Rio Grande Silvery Minnow

Agency: New Mexico State University

Location: Las Cruces, New Mexico (remote work arrangements may be considered)

Job Category: Post Doctoral Appointments

Salary: $60K-67K/year (DOE) with annual raises and benefits

Start Date: Summer 2024 (preferred, but negotiable)

Last Date to Apply: March 10th 11:59 PM (mountain time), though the position will remain open until a suitable candidate is found.

Description:
The USGS New Mexico Cooperative Fish and Wildlife Research Unit invites applications for two postdoctoral researcher positions to join a multi-agency partnership focused on recovery of the Rio Grande Silvery Minnow. Once abundant throughout the Rio Grande and Pecos rivers, minnow populations are now restricted to the Middle Rio Grande and threatened by a combination of water extraction, river regulation, and drought. Population dynamics are strongly linked to overall hydrology, and managers are interested in strategies to manage minnow populations in average or dry years when declines typically occur. Substantial uncertainty impedes decision making regarding where, when, and the amount of water to be released and the extent to which other management actions such as habitat restoration may compensate for particularly dry years.

These positions will co-lead the development of a structured decision making (SDM) framework and a series of accompanying predictive modeling tools. For the SDM component, the postdoc(s) will co-lead a series of three annual workshops focused on problem framing, expert elicitation of model parameters, and model validation. We anticipate developing multiple simulation-based decision support tools such as: extending existing models to optimize environmental flows at broad scale scales in the face of hydrological uncertainty; local-scale spatially explicit models to identify potential sites for habitat creation or restoration to enhance recruitment; and portfolio analyses to select an optimal combination of management actions according to environmental conditions. Additionally, the postdocs will be tasked with developing a monitoring strategy designed to detect the effects of management actions in relation to objective criteria. This announcement is for two positions, in which the specific tasks will be assigned based on the individual postdocs existing expertise, interests, and intended career path.

The postdocs will be supervised by Dr. Abby Lawson and Dr. Kasey Pregler of the USGS New Mexico Cooperative Fish and Wildlife Research Unit based at New Mexico State University in the Department of Fish, Wildlife, and Conservation Ecology, and Dr. Charles Yacklic (USGS Southwest Biological Science Center), while working closely with partners from the U.S Fish and Wildlife Service and Bureau of Reclamation. There may be opportunities to collaborate with researchers at other agencies and universities.
Responsibilities:
1. Co-lead a series of standing calls and webinars with PIs and stakeholders to keep them apprised of study progress
2. Develop a series of predictive decision support models that may include optimal allocation of environmental flows under hydrologic forecast uncertainty, spatially-explicit model development to identify sites for habitat creation/restoration, and a portfolio analyses to identify optimal sets of actions under uncertainty
3. Co-lead three stakeholder workshops that may focus on problem framing, eliciting model parameters, and beta-testing of decision support tools.
4. Design of a monitoring strategy to evaluate the effects of management actions
5. Lead the development of multiple manuscripts focused on development of a structure decision making framework, decision analytic tools (e.g., MCDA, risk analysis, VOI), predictive decision support modeling, or related topics

Position structure:
This announcement is for two positions, each funded for up to three years through a Bureau of Reclamation grant contingent on satisfactory progress. The successful candidates will be hired through New Mexico State University (Las Cruces, NM) and be based on the main campus, though remote options may be considered. The preferred start period is Summer 2024.

The postdoctoral researcher will be provided an annual salary ranging between $60,000 – $67,000 depending on experience, plus benefits, a desktop computer (based at NMSU) with high processing speeds, and travel funds to attend the workshops and national conferences. This position is an excellent opportunity to engage with agency professionals and conduct cutting-edge quantitative research.

Qualifications:

Minimum qualifications:
1. Ph.D. degree by start date in Wildlife, Fisheries, Ecology, or related field by the anticipated start date (preferred Summer 2024)
2. Expertise in R coding language.
3. Demonstrated desire and proven ability to publish in peer-reviewed journals.
4. Excellent written and personal communication skills
5. The ability to work both independently and collaboratively, and to meet deadlines.

Desired qualifications:
Competitive candidates will have a background in one or more of the following areas*: modeling of environmental flows, stochastic simulations, hierarchical modeling of population dynamics, constructing GUI-based decision support tools (e.g., R-shiny apps, NetLogo, etc.), structured decision making/decision analysis, portfolio analysis, or experience in facilitation and leading workshops with diverse stakeholder groups around contentious environmental issues.

*Note: We are hiring for two positions and do not expect a single candidate to possess all or most of these skills. These skills reflect ideal, but not required qualifications. We have included opportunities for training, so that the selected applicants may learn these skills on the job.
How to apply:
Submit an application through our online portal (link below). Applicants will be asked to provide the following: (1) a writing sample (such as a published manuscript or Ph.D. dissertation), (2) letter of interest that describes your qualifications and how this position fits into your career goals; (3) CV or resume that includes contact information (phone and email) for at least three references; (4) unofficial transcripts from your PhD institution. Individuals from underrepresented minority groups are strongly encouraged to apply.

Apply by March 10th 11:59 PM (mountain time) for full consideration, though the position will remain open until a suitable candidate is found.

Application portal: https://airtable.com/appRqKeZnl5rs9uTm/shrb0A8pD6jo8dUBW