# The Conservation & Restoration Ecology Exchange (CREEx)

**Project Summary:** An online funding mechanism for WDFW to post narrowly defined, but critical research questions. Faculty and undergraduate teams from small colleges compete for small matching grants (once a crowd-funding threshold is reached).

**NOTE:** This proposal is to support a pilot program with Washington Department of Fish & Wildlife, but if successful, it would be appropriate for expansion to other organizations. Some components (e.g. crowdfunding) would be phased in over a period of three years.

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Environmental organizations possess a wealth of data, however, management decisions are often based on expert opinion. This is often due to a number of constraints: 1) tight budgets and funding structures that may limit the flexibility of managers to answer the research questions they believe would be most useful, 2) limited personnel and limited internal access to specialists and 3) the inapplicability of much published literature for the specific challenges faced by natural resource managers [1,2]. In some cases, questions beyond the scope of full time employees are outsourced to contractors at great expense.

Faculty at primarily undergraduate institutions face different challenges. Faculty at small colleges and universities often have difficulty maintaining large research programs with heavy teaching loads, no graduate students and relatively small grants. There is also high turnover among undergraduates at these universities. However, due to the rigorous mentoring undergraduate research interns receive, small universities produce a disproportionate number of student researchers who go on to earn PhDs [3]. With appropriate mentorship small-scale studies conducted by teams of students can yield clear management recommendations and otherwise point to gaps in our current understanding [4].

An online Conservation and Restoration Ecology Exchange (CREEx) would allow federal/state agencies, private donors, NGOs/NPOs to stretch their management budgets to answer narrowly defined, but critical research questions. CREEx would also provide early independent grant-writing and research experience to students and inspire them through the real world application of science. Finally, crowd-funding would engage local communities in the natural resource management being conducted in their own backyard.

Five components would ensure benefits accrue to all CREEx participants:

- **Clearly defined questions** support threatened/endangered species recovery or monitoring
- **Crowd-funding platforms** help defray management costs, promote public engagement and gauge community interest (Requesting organizations match crowd-funds at a predetermined rate)
- **Local university students** gain experience in the entire research process, from proposal to reporting
- **CREEx accreditation** certifies researcher quality
- **Open access publishing venue** documents research activity for faculty and student participants

**Broader Benefits: "CREEx: Helping you, help us all."**

*Organizations*: Quick turnaround for questions requestors might not otherwise prioritize or those outside the organization's scope; *de facto* training program for members of a future workforce

*Faculty*: Ready resource for independent research topics and small grants to conduct them; venue for publication of small projects that might not find a home in other journals

*Undergraduates*: Practical experience submitting proposals, implementing experimental design, and publishing; the local, place-based nature of exchange would also be a powerful motivator

*Society*: Long-term civic awareness, engagement and support; locally-relevant research results; maximized returns on public and donated funds committed to natural resource management

**Mechanics of CREEx**

I. Requestors (Federal/state agencies, foundations, NGOs/NPOs) conduct **outreach to encourage small university faculty to register** as CREEx-accredited investigators.

II. **Requestors submit questions to CREEx**. The ideal Request for Proposals should be low cost, easy to execute and of high urgency or impact to conservation. RFPs should:
   a. List deliverables, scope of work and relevant deadlines (proposal submission to report)
   b. Describe anticipated budget ($500 – $5000: equipment, travel, stipend, summer salary etc.)
   c. Indicate crowdfunding threshold and matching rate (e.g. $3K budget = $2K threshold & 0.5 match)

III. CREEx-accredited **faculty submit 3-5 page proposals** via online template. Proposals should**:**
   a. Present a plan to conduct the research, qualified undergraduate interns (or a training program), and appropriate mentorship for the scope of work (incl. design, execution, and analysis)
   b. Present a feasible plan for crowdfunding (and/or PI contributions) to reach the funding threshold
   c. Appropriate permits (e.g. take, human subjects; requestors may be able to streamline permits)

IV. **Requestor reviews proposals** and awards contract (but see **VI.** re: crowd-funding threshold).

V. **Contracted team initiates funding campaign.** Team funding sources may include: crowdfunding from local communities (motivated by health, recreation, endangered species, etc.) and faculty contributions from existing research grants

VI. **Funding is matched by requestor** at predetermined rates once contracted team meets crowd-funding threshold. *Note*: rates might exceed 1:1, if requestor wishes to prioritize some questions

VII. **Research is completed and reports submitted on a short timeline** (3-12 months)

VIII. Following deliverables, **open access publication** is available to document faculty/student research and make data widely available (e.g. *Journal of Small-Scale Research*); at the discretion of requestor

**Examples of target areas (See Watts *et al*. 2010 and APPENDIX for examples)**

Natural Sciences: (e.g. Preliminary literature review to support status review of candidate species)

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| Endangered Species Recovery Plans | Environmental Mitigation |
| Habitat Conservation Plans | Agricultural impacts on conservation |
| Candidate Conservation Agreements | Invasive species removal/monitoring |

Social Sciences: (e.g. Capacity/flexibility to meet demand and maximize revenue from hunting licenses)

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| Economic/social impacts/benefits of policy | Communications strategy |
| Barriers to/promoters of adoption | Promotional/documentary video |

**Assessment**

- Number of undergraduate students, faculty and institutions registered; …awarded grants
- Number of reports submitted by undergraduate students, faculty and institutions awarded grants
- Number of reports incorporated into strategic planning, management policy/practice, monitoring
- Number of donors and amount raised in crowdfunding efforts; Estimates of requestor costs defrayed

**Literature Cited**


1. Wilcove DS, D Rothstein, D Jason, A Phillips, E Losos. 1998. Quantifying threats to imperiled species in the United States. *Bioscience* 48: 607–615.
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3. Burrelli, J, A Rapoport, & R Lehming. 2008. Baccalaureate origins of S & E doctorate recipients. InfoBrief Science Resources Statistics. *NSF 08-311*.
4. Watts SM, MM Uhl, SP Maurano, EE Nuccio. 2010. Using small-scale studies to prioritize threats and guide recovery of a rare hemiparasitic plant: *Cordylanthus rigidus* ssp. *littoralis*. *PLoS ONE* 5(1):e8892.


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