State the objectives, specific aims and the significance of the project, and describe the methodology used to achieve these goals. Avoid summaries of past accomplishments. The abstract is meant to serve as a succinct and accurate description of the work when separated from other portions of the proposal. Do not exceed the space allowed; 10 pt. font and single-spacing is allowed for this section only. Do not use abbreviations in the title.

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FUNDING AMOUNT REQUESTED: $18,730

PROJECT TITLE:  WebAtlas of the Anatomy and Pathology of Aquatic Birds

Abstract:
The primary objective of this project is to develop an internet based “living textbook”, a Wildlife WebAtlas, on normal and pathological anatomy and histology of aquatic birds. In investigations of oil spills biologists, veterinarians, rehabilitators and pathologists have few readily available resources of normal and pathological external and internal anatomy, and other species - specific biological parameters, including high quality images. Some published materials exist and organizations like the Armed Forces Institute of Pathology and the CL Davis Foundation produce slide sets and courses for professionals, but these resources are expensive and not widely available. On the other hand, a huge amount of information resides in the case files, image collections and the heads of people experienced in this field. A traditional static textbook could not provide the vast amounts of species - specific information, high quality color images and metadata in a searchable format. Additionally, a WebAtlas format will expand over time as more information and resources are identified and additional collaborators are recruited. The ability to include multiple types of digital images including radiographs, ultrasound, CT and other modalities makes an electronic atlas even more useful as a diagnostic, research and educational tool. Because of our experience with oil spills and wildlife pathology we will initially focus on aquatic birds, specifically on 11 species on which we already have sufficient data and are present in California or have close taxonomic relatives there. As the project continues, the list of species included in the web-atlas will be expanded. Currently our web-based atlas is a joint effort among the Tufts’ Center for Conservation Medicine, USEPA’s Atlantic Ecology Division, USGS’ National Wildlife Health Center, University of New Hampshire and Tri- State Bird Rescue and Research. A wider group of experts will be invited to contribute to expanding this WebAtlas once the initial beta testing is complete.

Project objective (specific aims):  Our initial project objective is to have a beta version up by summer 2010 for review by outside experts. Once that review is completed and any concerns addressed, a protocol will be established by which additional experts can submit case materials for inclusion. New materials will be reviewed for accuracy before being added to the website. Diagnoses are standardized according to the Systemized Nomenclature of Medicine-Clinical Terms (SNOMED). Concurrent with website infrastructure and protocol development, additional case information and images will be reviewed and processed for inclusion. Case information and images associated with oiling will be a focused use of OWCN funds.

Methods:  Computerization and Long-term Management. A prototype currently exists in an Oracle® database and is maintained at the USEPA Atlantic Ecology Laboratory. Currently five institutions are collaborating in developing the prototype Wildlife WebAtlas; both content and format are being expanded and fine-tuned. The current database includes all metadata available on individual cases including species, location, date, gross and histological description and diagnosis. Over the next 12 months the Wildlife WebAtlas will begin transfer to Tufts Digital Collections and Archives (DCA) based on the Fedora digital repository architecture. Tufts DCA has agreed to take on the long-term administration of the Wildlife WebAtlas.

Significance to oiled wildlife health: This WebAtlas will provide a tremendous resource for anyone working on oiled animals, or in the areas of wildlife health or emerging disease. We see three major areas of significance for oiled wildlife health. 1. Providing a major and versatile tool for education and training. 2. To help improve diagnostic capabilities and to bring uniformity to terminology and diagnostics. 3. As a stimulus to increase the exchange and sharing of information resources, which will facilitate development of new research, technologies and protocols for care of oiled wildlife. Over time the Wildlife WebAtlas will become an encyclopedic, constantly updated compilation of materials available in real-time at no cost to users from all over the U.S. and the world via the internet.