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Ecology and Conservation of Semi-aquatic Mammals and their Habitats: Implications for Policy

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Recent topics for special issues of the *Journal of Contemporary Water Research & Education* (*JCWRE*) include stormwater management (Hunt 2010); interdisciplinary water resource modeling, research, and education (Link et al. 2013); and watershed management (Edwards 2015). Such topics very clearly fit the aims and scope of *JCWRE*. However, as the title of the present issue indicates, we will deviate somewhat from these more common themes into areas of interest to the wildlife profession (The Wildlife Society 2016). In this brief prologue, I introduce the papers that make up *Ecology and Conservation of Semi-aquatic Mammals and their Habitats: Implications for Policy*.

Prior to introducing the papers in this issue, I will first define the group of wildlife species that are the subject of our theme. A "semi-aquatic mammal" is exactly what it sounds like: a mammal that spends at least some of its time in water. Many semi-aquatic mammal species inhabit the planet, with 10 mammalian Orders of freshwater species alone included in this group. Given their use of both terrestrial and aquatic habitats, semi-aquatic mammals are important to humans and aquatic ecosystems in many ways: as apex carnivores, environmental indicators, and harvestable species, to name a few (Feldhamer et al. 2003). Of course, the habitats used by semi-aquatic mammals are just as important (and probably more so) than the wildlife species themselves, as is well known by this audience. This compilation of papers will broadly address issues regarding wildlife population and habitat status and utility of semi-aquatic mammal species as environmental indicators.

The North American river otter (*Lontra canadensis*) and its habitat is a large focus of this issue. I admit this is in no small part because I have studied river otters for nearly two decades and have an especially strong interest in their ecology and conservation! Two papers address river otters solely in Illinois, USA, where populations have increased considerably following decades of harvest protection and reintroduction efforts in the mid-1990s (Bluett et al. 2004). Holland and van der Merwe utilize otter occupancy data from field surveys to test a prior habitat model; such analyses are relatively rare in the literature. Their work suggests ample caution regarding the appropriate temporal and spatial scale of habitat suitability models for assessing wildlife-habitat relationships. Nielsen presents results from population modeling efforts for river otters, illustrating the rapid population growth possible for this species in highly-suitable habitats with few true competitors. In such situations, wildlife managers should closely monitor population growth, as river otters are occasionally a nuisance species.

Two papers in this issue of *JCWRE* focus on river otters and beavers (*Castor canadensis*). The paper by Nielsen and Kelly measured habitat variables important for both species (as well as several others) as part of their broader assessment of wildlife habitat on mined lands. They found remarkable similarity in habitat conditions on mined lands 30 years following habitat restoration

associated with mining activities, indicating that reclamation activities can indeed be successful. Peterson and Schulte review evidence regarding the toxicological impacts of pollutants to beavers and river otters. They reinforce the notion that these two species can serve as important indicators of environmental health in aquatic systems.

While most of the papers in this issue of *JCWRE* discuss North American systems, I also include a study not of an otter...but of an otter shrew! Decher et al. provide updated distributional information for the Endangered Nimba otter shrew (*Micropotamogale lamottei*) in West Africa. They conclude further surveys are necessary to truly delineate the status of the Nimba otter shrew in this portion of its range and provide further conservation recommendations for the species.

In summary, I hope readers find these topics interesting and gain a further appreciation of wild animal users of aquatic resources. As a wildlife ecologist, I have enjoyed serving as a guest editor for this issue of *JCWRE*, and applaud your efforts for managing and conserving these ecosystems.

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