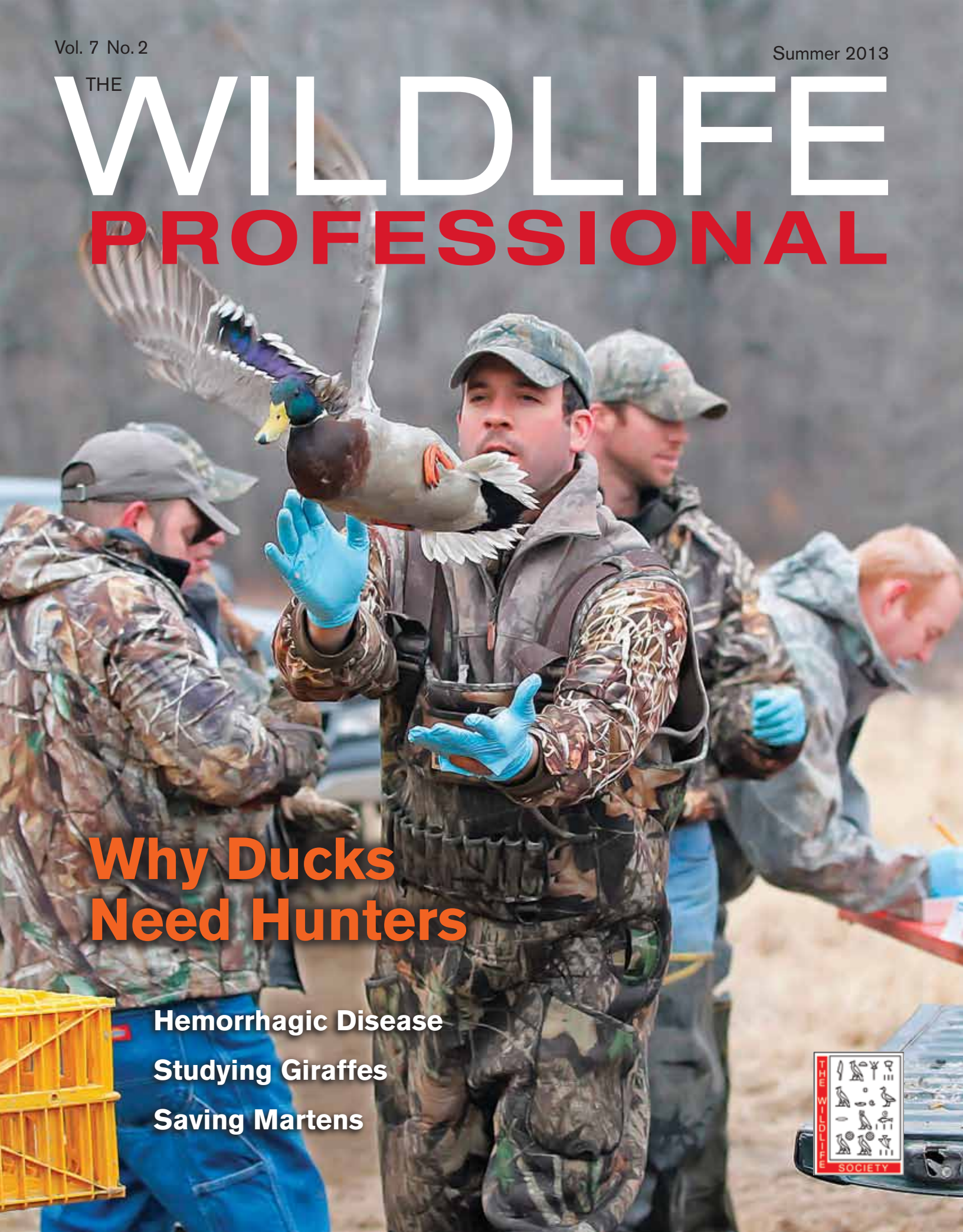


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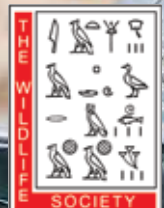


## Why Ducks Need Hunters

Hemorrhagic Disease

Studying Giraffes

Saving Martens





production. During a period of fruit scarcity, levels averaged 33 percent higher in monkeys living in more fragmented areas, and the farther the monkeys traveled to find fruit, the higher their GCM levels. The researchers say that the results highlight the importance of protecting large, undisturbed forest areas that reduce travel time. They recommend planting fruit trees in howler monkey habitat—especially ones that produce fruit during periods when other trees do not—and more research to determine whether high GCM levels impact the species' long-term survival.



Credit: The Royal Society

**Bears and Gulls Track Salmon**

Sockeye salmon (*Oncorhynchus nerka*) swim upstream to spawn at different times that are determined by each stream's water temperature. A study in *Biology Letters* (v.9/3) reveals that at least two salmon feeders—glaucous-winged gulls (*Larus glaucescens*) and coastal brown bears (*Ursus arctos*)—track when salmon appear in different streams, congregating around a river within days

of a spawning population's arrival and then moving on to the next active spawning site. Daniel Schindler and colleagues at the University of Washington counted bears and gulls within the Wood River watershed, which drains into Bristol Bay, Alaska, from June through September 2011. The mechanism that bears and gulls use to determine when and where the salmon will arrive was not investigated. The combination of salmon populations arriving at different times in different locations and the willingness of bears and gulls to travel to find new salmon sources resulted in an extension of the feeding season from 33 to 65 days. The researchers suggest that ecosystem-based fisheries-management efforts should focus on the spatial and temporal variation during spawning season in order to maintain the extended feeding season for bears and gulls, and to preserve the genetic diversity of salmon populations.



Credit: The Royal Society

**Old Bones Reveal Habitat Use**

Surveys for the bones and antlers of caribou (*Rangifer tarandus*) in Alaska's Arctic National Wildlife Refuge (ANWR) indicate that skeletal remains are an untapped source of data on caribou ecology, according to a study in *Proceedings of the Royal Society B* (v.280/1759). Joshua Miller of the University of Cincinnati and colleagues hypothesized that caribou calving grounds accumulate high

concentrations of female antlers and neonatal calf skeletons because, within days of birth, mothers shed their antlers

and calf mortality is high. On a known calving ground, they discovered abundant female antlers (up to 1,000 per square kilometer), and up to 60 percent of all skeletal remains were neonatal. In addition, while previous research has shown that tussock tundra-dominated habitats are preferred for calving, the openly vegetated riparian terraces contained more skeletal remains, suggesting that riparian areas have greater importance during the calving period than previously thought. Yet less than 10 percent of ANWR calving grounds include terrace habitats, so the researchers recommend greater preservation of such areas, especially in the face of current proposed petroleum development. In addition, because bones can survive in arctic habitats for hundreds to thousands of years, similar surveys can provide a historical view of caribou land-use patterns, perhaps revealing how climate change has impacted these patterns in the past and may do so in the future.



Credit: German Soc. of Mammalogy

**Beavers Thaw Goose Ponds**

Previous research has shown that beaver (*Castor canadensis*) activity in aquatic habitats creates more waterfowl nesting habitat, which improves the birds' breeding success. A study in *Mammalian Biology* (v.78/1) now shows that beaver activity also clears snow and ice from ponds in northern climates earlier in the season than in ponds without beavers,

creating earlier nesting habitat for Canada geese (*Branta canadensis*). Chantal Bromley and Glynnis Hood of the University of Alberta compared the number of Canada geese nests in 32 ponds where beavers actively maintained lodges to 39 ponds without beavers in Miquelon Lake Provincial Park, Canada. Active beaver ponds contained 22 percent more nests than inactive ponds. Beaver activity warmed the water, which melted ice from the ponds 10.7 days earlier than in ponds without beavers and reduced the average snowpack depth by 5.9 centimeters. The researchers also observed that Canada geese exhibited more territorial behavior toward other Canada geese over areas closest to beaver lodges when building their nests, suggesting that they preferred beaver lodge sites to other sites. The results add evidence that beavers play a role in Canada goose habitat selection.



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