Tony Hisgett

The Golden Eagle—New York's other eagle

By Thomas Salo

"I see them all the time, sitting along the river."

I regularly hear this comment when I speak to people about golden eagles. That's because of the remarkable success of the reintroduction of bald eagles by DEC and other agencies which has made the birds almost common along our waterways. But these riverside eagles are almost always bald eagles, not goldens.

Young bald eagles and golden eagles look similar (see "Bald or Golden?" on page 12), but they are very different birds. Bald eagles are one of the eight species of Haliaeetus sea eagles, found near rivers and other water bodies. Golden eagles are upland birds more closely related to red-tailed hawks. They are rare in New York, and hardly ever seen. With a small eastern U.S. population of about 5,000 individuals, they avoid people and tend to stay at high elevations.

Golden eagles are beautiful iconic birds found throughout the northern hemisphere. They are consummate predators, primarily preying on medium-sized mammals and various birds, but also scavenging dead animals when available. Golden eagles readily take rabbits, and in late winter, woodchucks that have emerged to breed. Wintering goldens have also been seen killing wild turkeys, often when there is deep, powdery snow and turkeys have trouble moving.

Golden eagles are capable of killing animals much larger than themselves. In Mongolia, they are still used as falconry birds to hunt gray wolves and other large prey. While they are known to kill deer-size prey, this is not common behavior and there are no documented cases of golden eagles attacking deer in New York. However, goldens have occasionally been seen scavenging deer carcasses on lakes and the frozen reservoirs of the New York City watershed.

In New York, the golden eagle is listed as an endangered species. They successfully bred here until the 1970s when impacts of DDT and habitat change contributed to the bird's demise. In the Adirondacks, the large, isolated, open areas created by burning and clear-cutting more than a century ago, has slowly returned to forest. This negatively affects breeding goldens that once made use of the formerly open habitat. Today, the entire eastern North American population of goldens breeds exclusively in Canada; studies are underway to learn more about this population.

Goldens migrate into the U.S. for the winter, passing through New York twice a year. Raptor enthusiasts spot them moving along ridges in the fall (big soaring birds need lift from thermals or wind deflecting off ridges to migrate efficiently), and also along Lake Ontario's shore in spring. A minor part of this small population spends the winter in New York, and occasional winter sightings are reported. Most of these reports come from the northern Catskill Mountains and the Upper Susquehanna watershed.

Last winter, the Delaware-Otsego Audubon Society (DOAS) and DEC started trapping and tracking golden eagles. The team successfully captured and tagged three birds in Delaware and Otsego Counties, which are now being tracked using Global Positioning System (GPS) technology. GPS, smaller electronic devices, and greater digital memory allow us to examine eagle migration and habitat use in ways only dreamed of a few decades ago. Solar-powered batteries can extend the life of these units for up to five years.

Every 15 minutes, the solar-powered GPS tracking units record speed, elevation and location, and send data via cell phone towers. When the birds are out of range during the summer, the units still record data, which can be downloaded when they return in the fall. These data will help us learn where they breed and the intimate details of their migration.

Becky Gretton

Because male and female golden eagles look alike, biologists measure a golden eagle's beak with a caliper to help determine the bird's gender.

Where Can I See Goldens?

If you have never seen a golden eagle's iridescent nape glowing in the low autumn sun, you're missing out. Luckily, there are several places in the state where you might be able to spot one.

On days with favorable winds, hawk watch sites are good places to find migrating golden eagles. During late October and November, eagles concentrate along ridges, mostly in central New York (see figure, page 13). The highest fall concentrations are found at Franklin Mountain Hawk Watch near Oneonta. On cold days with a northwest wind, the eagles fly low, sometimes at eye level. Bring binoculars and plenty of warm clothes.

In late winter and early spring, adult goldens migrate back to their northern breeding grounds, once again putting them on the ridges of central New York. Younger birds tend to wander north. Those in the western part of the state follow the south shore of Lake Ontario. In spring, the Braddock Bay and Derby Hill Bird Observatories are two of the best places to find the birds. Some birders travel hundreds of miles to these sites for the chance to add a golden eagle to their life lists.

Keep in mind that timing of migration and conditions will vary from site to site. Be sure to check these things out before heading to a hawk watch. Information on hawk watches can be found on DEC's website at www.dec.ny.gov. In addition, migration timing graphs for New York hawk watch sites can be found at www.hawkcount.org.

Susan L. Shafer

Bald eagle

Mike Pogue

Immature bald eagle

Becky Gretton

Golden eagle

Bald or Golden?

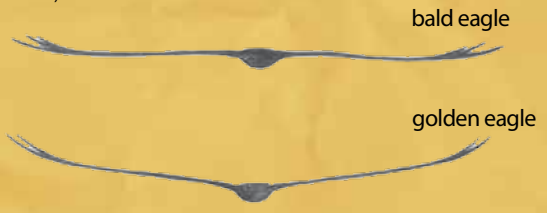
Distinguishing between our two eagle species can be difficult. However, the following information can help you identify whether it's a bald or a golden eagle.

Location and Amount of White Plumage: Adult bald eagles are obvious, due to their white head and tail. Even juvenile bald eagles have more white visible from below than do juvenile golden eagles. The white plumage on juvenile goldens is limited to the base of the tail and a patch on the flight feathers; juvenile balds may have white on the body and wing linings.

Immature bald eagle (left); Immature golden eagle (right)

(Illustrations by Dave Kiehm)

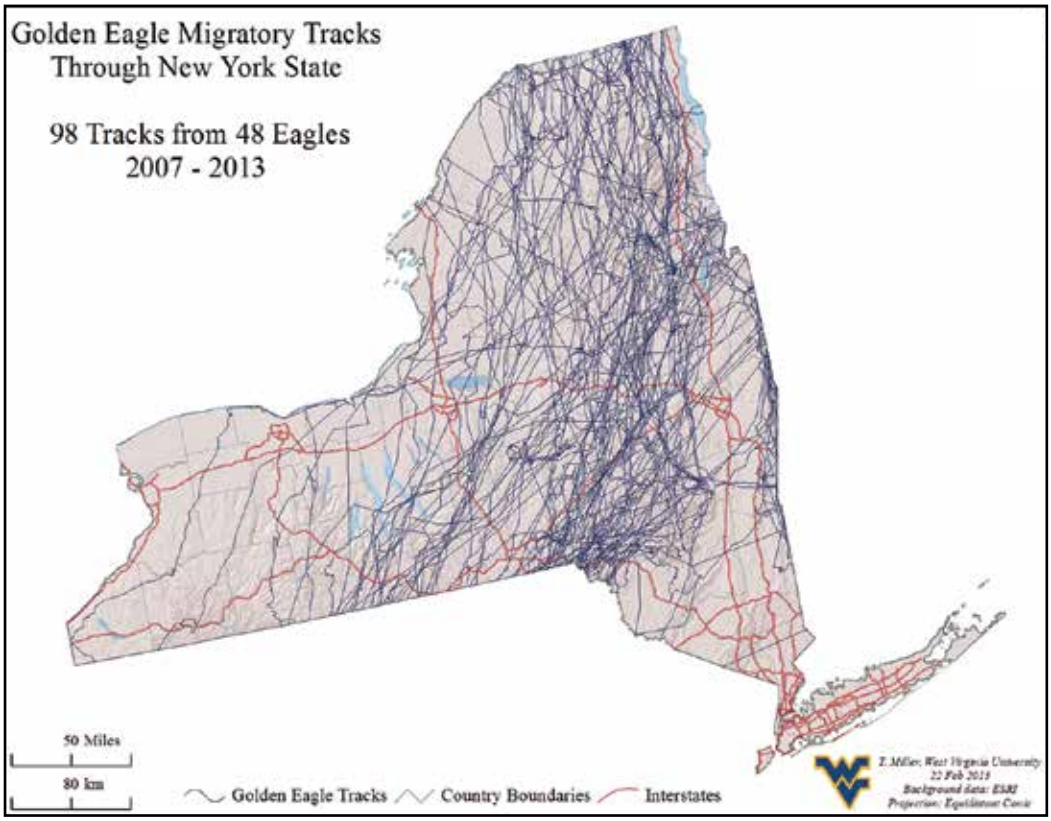
Head Size & Flight Profile: Bald eagles have a much larger head and beak in relation to their body size than golden eagles. If the head is more than half the length of the tail, it is a bald eagle; one third the length of the tail makes it a golden. In flight, bald eagles soar on flat wings while golden eagles hold their wings in a slightly upward angle (called dihedral).



(Illustrations by Dave Kiehm)

Additional Features: Other distinguishing physical characteristics include scaly, bare lower legs on bald eagles, and feathered legs down to the feet on golden eagles. In addition, the head and neck of the golden eagle appear an iridescent golden color in good lighting (hence its name).

Bald eagles can be found in NY year-round, with large numbers often congregating in winter. Golden eagles are migratory species, and are rarely found in the state from May to September. They are typically observed in late fall and early spring, although a small number do over-winter. Bald eagles are often found near bodies of water, while golden eagles are typically found in open country. Although both will travel long distances looking for food, bald eagles tend to do more scavenging, and goldens can be observed hunting more frequently.



Delaware-Otsego Audubon plans to tag more eagles this winter. Data from these birds will be used for in-depth studies of how the eagles use the habitats and terrain of New York. Data will be shared with DEC and an eagle research team based at West Virginia University that has been tracking golden eagles with GPS since 2006. Including data from the New York birds will improve biologists' migration models.

Biologists also use camera traps (motion-activated cameras at a site baited with road-killed deer) to gather information on golden eagles. Since 2010, DOAS has been using these set-ups to document the presence and density of goldens in the winter. Last winter, they documented golden eagles at eight sites in Delaware and Otsego Counties, and two more sites in Madison and Orange Counties.

Camera traps have provided good insight into the eagles' habits. For instance, images illustrate that when golden eagles feed, they most often feed alone. Bald eagles, however, scrap with each other, and share the bait with large numbers of common ravens. Interestingly, ravens persistently pull the tails of hawks, bald eagles and other ravens, but not golden eagles. This is because a raven is a potential meal to a golden, as revealed by some of the captured images.

Large, imposing birds, golden eagles have very few natural predators. However, as apex predators themselves, golden eagles accumulate environmental toxins in their bodies. DDE—a long-lived metabolite (substance produced by metabolism) of DDT—still remains persistent in the environment and can affect these birds. In addition, golden eagles that ingest lead fragments found in game carcasses may get sick or die from lead poisoning. (See "Wildlife Health Corner" in February 2014 *Conservationist.*) Eagles (both bald and golden) readily scavenge deer carcasses and gut piles during hunting season, leading to the accidental ingestion of lead bullet fragments. (Lead bullets can shatter into hundreds of small pieces on impact with bone.) Of 239 golden eagles in the east and west tested for blood lead levels in recent years, approximately 60% of the birds had elevated lead levels. Even sub-lethal amounts of lead can impair a bird so it cannot hunt or feed effectively, indirectly causing death.

Fortunately, safe and highly effective alternatives to lead ammunition are now available. Copper and gliding metal bullets—also referred to as monolithic bullets—leave no toxic trace because they remain intact. (See "Alternative Ammo" in October 2012 *Conservationist*.) A lot of hunters agree that they are also more effective for hunting than traditional lead; many hunters have switched to using non-lead bullets.

Protecting golden eagles requires understanding them, and we still have a lot to learn. Though our studies are slowly answering some of our questions, we still need to learn more about their movements, distribution, abundance, and their prey requirements and habitat needs during winter. There are also gaps in our knowledge of migration patterns and concentration areas. With a better understanding of the birds, we will be better able to conserve critical habitats needed for their continued success.

Involved with Franklin Mountain Hawk Watch since 1989, **Thomas Salo** is a former regional editor of the journal, *The Kingbird*, and regional coordinator for the *NYS Breeding Bird Atlas*. He currently leads a research effort on wintering golden eagles by DOAS, and is NYS coordinator on the Appalachian Eagle Project.