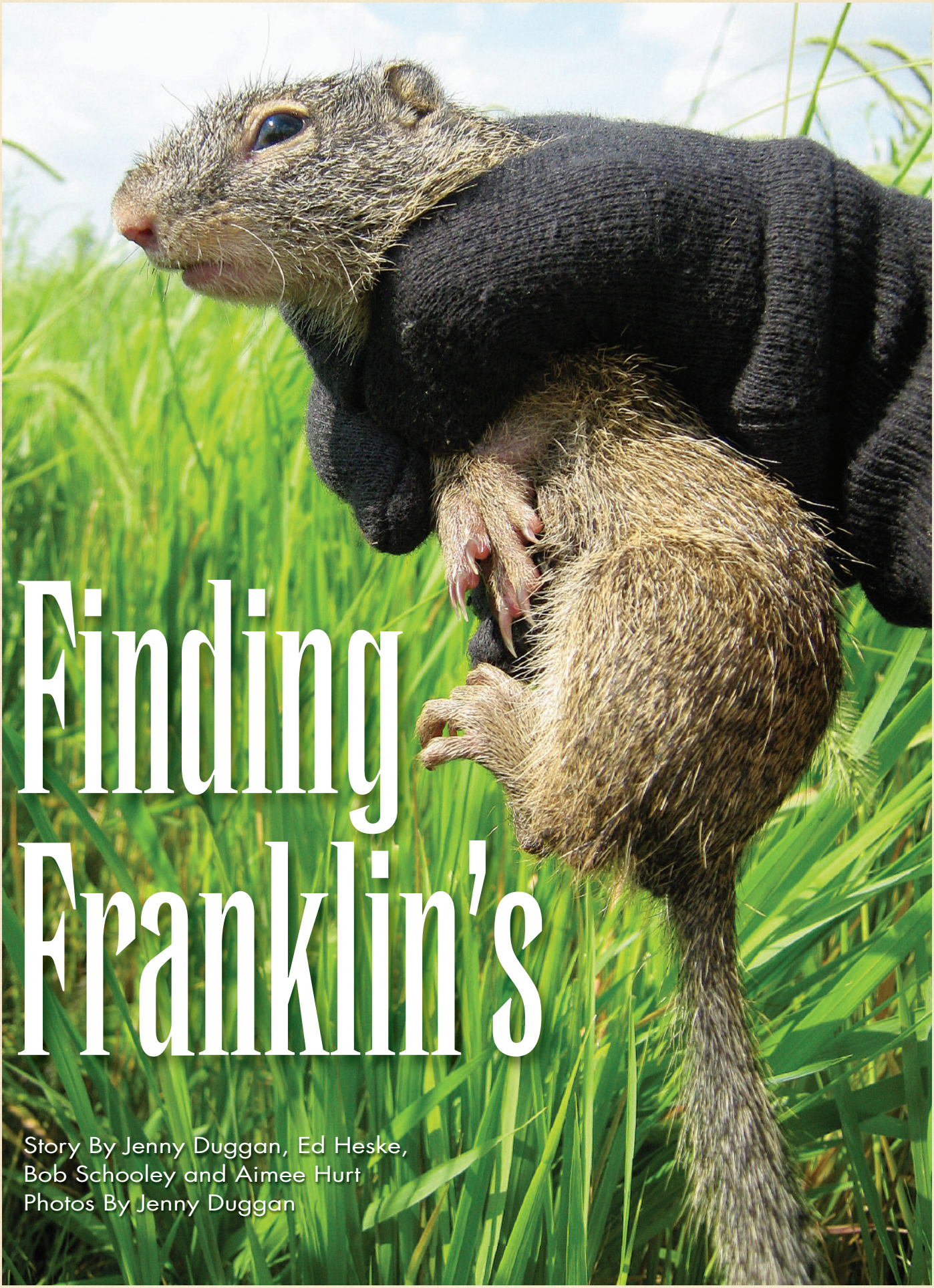

Finding Franklin's

Story By Jenny Duggan, Ed Heske,
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Photos By Jenny Duggan

Man's best friend may be just what is needed to track down Illinois' most secretive ground squirrel.

In Illinois, blooming daffodils and singing robins are heralded as signs of spring. However, for some mammalian ecologists, the emergence of ground squirrels from the deep burrows in which they've been hibernating marks the true beginning of the season.

Two species of ground squirrels can be found scampering above ground in Illinois come spring: The thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*) and Franklin's ground squirrel (*Spermophilus franklinii*). Thirteen-lined ground squirrels are small, striped and a bit larger than a chipmunk. Franklin's ground squirrels, on the other hand, look similar to tree squirrels—large and speckled grey, but with a smaller tail.

Like most ground squirrels, Franklin's spend about three-quarters of the year underground hibernating. Males emerge first each spring, around mid-April, and females emerge about two weeks later. Females remain close to their burrows, but males typically search a larger area for prospective mates. A single litter of about seven to nine young is born in early June, and juveniles appear on the surface about 30 days later. The young grow rapidly and are ready to disperse by August or early September. Juvenile females usually settle close to home, but young males roam more widely in search of a new place to live, hopefully near unrelated females.

Aimee Hurt, with Working Dogs for Conservation, is training high-energy shelters dogs, such as Wicket, to determine if they will be able to locate Franklin's ground squirrels by smell.

Typical Franklin's ground squirrel habitat consists of slightly sloped, well-drained land with tall grasses and some trees and brush.

Adult males already may be underground for the remainder of the year by late July, with adult females going underground around late August. Juveniles need time to pack on more body mass to survive the winter, and to disperse if they are going to, so they typically go underground in early September. Obviously, for these animals hibernation has more to do with minimizing predation risk and conserving energy than just avoiding the cold. Mortality is highest during the first year of life, but if a Franklin's ground squirrel makes it through that first winter, it might live 4-5 years.

Sightings of thirteen-lined ground squirrels are common in the short grasses of lawns, parks and cemeteries. Because Franklin's ground squirrels are secretive and prefer living in tall, dense grasses where they are not easily spotted by humans or predators, most Illinoisans will never see this squirrel. However, Franklin's ground squirrels also are a rarity because the tall grasses that used to be found in prairie and savannah habitats have all but disappeared in Illinois.

Smaller than a gray squirrel, the Franklin's ground squirrel's tail is about as long as its body.

While thirteen-lined ground squirrels prosper in human-managed landscapes, Franklin's ground squirrels are listed as threatened in the state of Illinois. Franklin's also are less social than any other species of ground squirrel and occur in small groups of widely dispersed individuals rather than noisy, crowded colonies like western species.

The Illinois Natural History Survey is studying the causes of the decline of Franklin's ground squirrels, as well as what can be done to prevent the squirrels from disappearing completely. There isn't a lot of tall grass habitat left in the Midwest, but the burning question is: Is there still enough for Franklin's ground squirrel populations to survive? If so, the cause of the squirrels' decline might not simply be a decrease in the amount of suitable habitat, but also involve the increased distances (or hardships) squirrels must travel through to find remaining areas of suitable habitat. Dispersal among habitat patches is important to help maintain the small colonies occupying each patch through immigration, re-colonization of patches after local extirpations and promoting genetic diversity by preventing inbreeding.

To get to the root of the problem, INHS is surveying Franklin's ground squirrels in Illinois and adjacent states to determine where the squirrels are present. This information will be used to determine exactly what kind of habitat the squirrels need and estimate how much of this habitat remains in Illinois.

The second aspect of the study will be to determine how the squirrels move through the agricultural landscape that covers most of our state. By tracking the movements of radio-collared squirrels as they make decisions while traveling (e.g., "Should I take a shortcut though the cornfield or go all the way around? Should I cross this busy, open road or turn around and go back?"), an understanding of what acts as a barrier to movement between areas of suitable

(Photo courtesy Chris Young, Springfield State Journal-Register.)

Funding for this project has been received from the U.S. Fish and Wildlife Service, University of Illinois at Urbana-Champaign, Illinois State Academy of Sciences and American Society of Mammalogists.

habitat, and whether these barriers are getting to be too much for the squirrels to handle, can be determined.

Of course, surveys for Franklin's ground squirrels can be frustrating given how difficult it is to find these secretive squirrels. That's where man's best friend steps in.

INHS and University of Illinois researchers are collaborating with Working Dogs for Conservation to test whether trained detection dogs can be used to sniff out Franklin's ground squirrels. The Montana-based non-profit organization adopts high-energy, toy-obsessed dogs from local shelters and trains them to identify a study animal or its scat by smell, and to signal to their handlers every time they pinpoint that smell. Instead of researchers spending days searching fields, roadsides and railroad rights-of-way for burrows, then setting live traps over three to four days to determine whether Franklin's ground squirrels are present in an area, they may be able to conduct a survey with a detection dog/handler team in a matter of hours.

For additional information on Working Dogs for Conservation, visit www.workingdogsforconservation.org

Knowing your ground squirrels

Franklin's ground squirrel
Spermophilus franklinii

(Photo courtesy Chris Young, Springfield SJR.)

Weight: males 370-500 g, females 340-425 g
Description: Gray head with whitish eye-ring, mottled gray to brown back, light gray undersides, bushy gray tail about as long as the body length. Smaller than a gray tree squirrel, but almost two times larger than a thirteen-lined ground squirrel.
Habitat: Tall grass, shrublands and woodland edges, disturbed areas with tall grass or weeds as long as the soil is well drained, such as railroad rights-of-way. Will vacate mowed areas.
Diet: Mostly green vegetation, seeds and insects. The most carnivorous of ground squirrels, Franklin's also are known to eat mice, toads, small birds and the eggs of ground-nesting birds, such as ducks, when they find them.
Range: Occurs from northwestern Indiana through Nebraska, north through the Dakotas into the aspen parkland and central prairies of Canada. In Illinois, Franklin's occurs in the northern two-thirds of the state, south to about the Shelbyville moraine.
Status in Illinois: Uncommon, listed as state-threatened in 2004.

(Photo by Adele Hodde.)

Thirteen-lined ground squirrel
Spermophilus tridecemlineatus

Weight: 110-140 g, sexes similar
Description: Thirteen alternating pale and dark stripes on the back, with lines of pale spots in the dark stripes. Tan to golden sides and underside, and along edges of tail. Tail about two-thirds the length of the body, and not as bushy as that of a Franklin's or tree squirrel, more like that of a chipmunk.
Habitat: Short grasses, including mowed roadsides, lawns, cemeteries, and other human-managed areas, although it also can be found in old fields and prairies if the grasses are not too tall and there are open areas between the clumps of grasses.
Diet: Mostly seeds and other plant material, plus a variety of insects and grubs. Thirteen-liners also will consume birds' eggs and small lizards or snakes occasionally.
Range: Within Illinois, the ranges of Franklin's and thirteen-lined ground squirrels are similar. However, thirteen-liners range farther east through Michigan, farther west through eastern Montana, Wyoming, and Colorado, and farther south through Oklahoma and Texas to the Gulf Coast.
Status in Illinois: Common.

(Photo courtesy Greg Spyreas, INHS.)

Reliance on prairie and savannah habitats, both in decline in Illinois, has resulted in the Franklin's ground squirrel being listed as a state-threatened species.

Man's best friend, indeed.

Each spring, when you see the first flowers blooming and hear the birds singing, remember that there are other signs of spring, too, but some of them may be best found by sniffing.

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