



Fort Tuthill

pinos & oaks, cavity nesting birds & tassel-eared squirrels
(AWWE script by Diane Hope & Rose Houk, May 2014)

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Rose Houk: Welcome to the Fort Tuthill guide where you'll get a chance to learn about some interesting little mammals and their habitat. There are plenty of trail options to explore and watch wildlife at Fort Tuthill County Park; on a bicycle, the Flagstaff Urban Trail brings you there two miles south from town; in a vehicle, you can park and take a stroll on the Soldiers Trail – a five and a half mile loop through the park. At first sight the area might look like only lots of ponderosa pines. But there's more than pines here. Gambel oaks growing beneath the pines are an important component too – they produce acorns that many animals eat. And as wildlife biologist Rick Miller explains, by providing nest sites, oaks dramatically increase the diversity of birds found in the forest...

RICK MILLER: "A lot of the birds in ponderosa pine forest around Flagstaff are limited by nest sites – a lot of them use ponderosa pine – but a lot of them use oaks because the oaks by the time they're about 90 years old, half of them will have a cavity, a hollow place in them. They're very very slow growing – by the time they're 20 inches in diameter they could be as old as 600-800 years old. So they're a really long-lived neat species. Basically they're supporting a whole little microcosm/a whole world dependent on the oaks. Once they get up to about 18 inches or greater in diameter they'll have 4-5 cavities & then they may have four or five different birds nesting or roosting in those cavities."

RH: The tops of older oaks are often broken, and small owls or hawks will nest there. Other birds use Gambel oak too. There's two species of nuthatches - the larger white-breasted nuthatch, blue-gray on top with striking white undersides and a black cap. It's just about the only bird that travels down the tree trunk as it forages. Once learned, it's repeated 'yank yank yank' call is easy to recognize. Pygmy nuthatches have brown caps and as their name suggests, are much smaller – about the size of a chickadee.

MILLER: "The pygmy nuthatches will roost in pine or oak – they're a very small bird – about the size of your thumb. They gather together during the winter in large groups and there'll be up to 120 birds in one roost – and that's the way they stay warm. If you think about it – poor little bird about the size of your thumb. They stay here all winter and the way that they do it is by gathering together to keep each other warm. Up to 120 in one cavity."

RH: You're also likely to see Stellar's jays. They're the only crested jay west of the Rocky Mountains, so are fairly easy to identify—sooty black heads blend to a rich turquoise on primary wing and tail

feathers. Their harsh shrieking call is distinctive too, but they're also skilled mimics and will imitate all kinds of mechanical and animal sounds.

Abert's squirrels

RH: Abert's squirrels inhabit the same places as Steller's jays. You're quite likely to see the squirrels — or sign of them — on Fort Tuthill trails throughout the year. An adult Abert's weighs about one and half pounds -- about the same as a loaf of bread. These handsome squirrels have white bellies and gray backs--usually with a rusty reddish patch--and fluffy tails. They use their tails to shade their bodies on a hot summer day - in fact, their Latin name *Sciurus* [si-yur-rous] means "shade tail" or "umbrella tail." Their tails also help with balance and serve as a rudder as they jump from tree to tree. To warn you – or another squirrel – that 'this is my tree', they first stamp their forepaws ... then shake their tails, then bark – if that doesn't work, they'll do all three!

Abert's are part of a larger group called 'tassel eared squirrels' because of the long hairs growing at the tips of their ears. But did you know that in the spring those tassels fall off, then grow back in the fall? Sylvester Allred, who's been studying Abert's squirrels for decades, thinks it's their version of warm ear muffs ...

SYLVESTER ALLRED: "I've actually had people call me and say 'I've seen some squirrels in the forest but they don't have any tassels in their ears.' They lose them early into mid spring and then they will regrow the early in the fall. It has to do with thermal-regulation. Their ears get very cold – and these squirrels don't hibernate, they're out there every day & that's a very tender part of their body's."

RH: If you watch squirrels around Fort Tuthill, you'll notice they're actively foraging all year...

ALLRED: "It may surprise/shock you to find that these squirrels do NOT store food at least in big piles like other squirrels you might of heard of do. They have to feed every day & they do bury single cones & single acorns, but they don't have big piles of these. Every day one of the main foods that these squirrels eat is the inner bark of the ponderosa pines. They will go out on a branch & cut part of a limb off – about the diameter of a pencil to index finger, and then they will remove the needles with just one bite, and the needle cluster falls to the ground. And then they have a little stick, and they peel the outer bark which falls to the ground and then they're left with a little stick that's white. When the squirrels have the little stick in their forepaws, they twirl it as if they were eating corn on the cob & they scrape that inner bark off with their teeth. What they're scraping's called phloem & that has a lot of sugar in it that the tree has made. After they've scraped it they drop that stick to the ground - so you might find little sticks along with the pine needle cluster. Now that particular food item is available to them year round so they'll eat that in the summer, spring, fall & winter. So if you're walking through the forest in the winter you may find trees that look like they've lost a lot of needles because the squirrels have been feeding on them."

RH: Notice all the pine cones around too – they're also food for squirrels.

ALLRED: "The cones when they start to grow are very tiny - about as big around as your thumb - and purple & as they grow they get more elongated & each bract on the cone has a little prickle at the end. If you pick up a cone you'll see the prickles - squirrels don't seem to be bothered by the prickle at all, although you'll see that it's quite sharp. As the cone grows it becomes green, it's very tightly closed & has lots of sap in it & the sap & prickles are defense to protect the seeds. But the squirrels take it apart, and they're taking the seeds out & eating them and then when they've finished they drop the cone core, which is kind of a reddish brown. And after they get full they'll sometimes go out & take a cone & put it in their mouth, go down the tree, find a place & bury it. They'll dig with their forepaws, push the cone & cover it up. They do not have any pencil & paper and so they're not recording where they bury the cones! But many of the cones are found - not necessarily by the squirrel that buries the cone but by others, using their sense of smell. I've seen them do this under 6 inches of snow!"

RH: It takes a ponderosa pine tree about two years to develop a cone - and a squirrel about two minutes to take it apart. Averaging 100 calories per seed, 60 seeds per cone and 40 to 50 cones a day that's a LOT of calories, which squirrels need to fatten up and make it thru' the winter. In a good cone year you'll see lots of the reddish brown cone cores the squirrels leave behind.

Abert's squirrels eat all sorts of mushrooms that pop up on the forest floor during the summer monsoon - even poisonous ones, which they have enzymes to detoxify. . .

ALLRED: "...there are other fungi that live underground ('hypogeous') called false truffles - and these fungi grow in association with ponderosa pine roots & help the tree grow. They hold more water (which drains thru' the volcanic soils here fast) & nitrogen that the tree desperately needs. The fungus is attached to the tree root (it's not harming it) & some of the sugar produced in the tree needles is transported down to the roots & the fungi tap into that for food, but they're underground about 3-4 inches & the only way that they can spread their spores is to have an animal dig them up. And squirrels do that. They find them again with their great sense of smell, they dig them up & eat some of the truffle - the spores get into their digestive tract. They are not digested & as they pass out at the squirrels scamper through the forest they inoculate other pine roots. So the pine needs the fungus - and the fungus needs the squirrel and the squirrel needs the fungus and the tree. So it's a really nice triangle of cooperation."

RH: Of all the things squirrels eat, false truffles have the highest amount of protein. So squirrels keep airborne larders on tree branches to dry & store their mushrooms to eat through the winter. But don't get too excited if you find ragged looking blackish-yellow truffle remains - they're not the delicious edible truffles prized by chefs!

If you see ends of pine branches with long stems scattered on the forest floor, they're probably squirrel 'nest clips'. If you see some, stand with the sunlight behind the tree and look about 30 feet above you for a round, beach-ball sized nest on a branch or fork of the tree. A nest has just one entrance, and it's lined with all kinds of soft things - including plastic bags, newspaper, grass, and rabbit fur. Each squirrel will have two or three nests in its home range. And they're fussy about nest

location — almost all are built on the southeast side of a tree – to take best advantage of solar heating.

ALLRED: “They don’t hibernate – but on very cold days they will stay in their nest – but they’ve lost a day of eating. So usually they just go into torpor – lower their body temperature, heart rate & respiration to conserve energy. But within a day they have to get out and feed.”

RH: In the wild, Abert’s squirrels typically live about four or five years. Other than malnutrition during long hard winters, a big cause of death is predation. A squirrel on the ground with its head down digging is vulnerable – especially to goshawks. Road kills are another cause of death, but since trees have been thinned from the sides of many roads to reduce icing, squirrel mortality has declined - because the forest isn’t coming up so close to the road - neither are the squirrels!

In good habitat, there’s about one squirrel every acre, so you should easily find them. But Sylvester Allred has some helpful tips.....

ALLRED: “They go to bed at sunset & get up around sunrise. (But) if you want to see their activity around 8:30 am they’re out feeding, then around 10-11 am when it starts to warm up in the summer, they will start going out on branches & just resting. Then later in the afternoon they’ll become more active again.”

RH: And if you see a long line of squirrels chasing each other in the woods – chances are that’s a mating chain, with a female at the front followed by a line of suitors. But Allred says that’s not the only reason squirrels chase each other ...

“...you might see a couple chasing each other around a tree – and I think part of that is territoriality – and I think part of its play. Because they will chase each other around a tree on and on and bark and stamp their feet and flick their tails, then chase some more. I think squirrels have fun! If you’ve been out in the woods enough and walked around and seen squirrels and observed them, - they have fun!”

Outro

RH: We hope you have fun too -- watching these fascinating squirrels and reading their signs. To learn more about where to watch other small mammals and how to spot their signs – take a tour of Picture Canyon.