

LIVING WITH LIONS

By Dr. Quinton Martins





Photo: Quinton Martins/All Hands Ecology

The Living with Lions Project is a partnership between True Wild Conservation and All Hands Ecology. True Wild also partners with Sonoma County Wildlife Rescue. Dr. Quinton Martins is the co-founder of True Wild Conservation and the Principal Investigator of the Living with Lions Project.



**WILDLIFE
RESCUE**
SONOMA COUNTY

TRUE WILD VISION

Connect people to nature, which
leads them to take action to help
conserve the planet.



*Observing animals in
wild places, like this
leopardess hunting, is
an incredibly
impactful experience
which can transform
the way people see our
world, and inspire
action to protect it...*



After working as a safari guide, Quinton Martins went on to study and protect leopards in South Africa. He obtained his PhD on leopards in 2010.



After establishing the Cape Leopard Trust and running it for 10 years, Quinton moved to California where he studies and protects mountain lions.



Mountain lions were historically not an apex predator in North America. After all their larger competitors went extinct, they filled the position of apex predator but have a more timid temperament than that of the big cats. This could be one reason why so few people have been attacked by mountain lions.

Courtesy of Daniel Reed
dantheman9758.deviantart.com

North America's Large Cats During the Pleistocene

American Lion
(*Panthera leo atrox*)

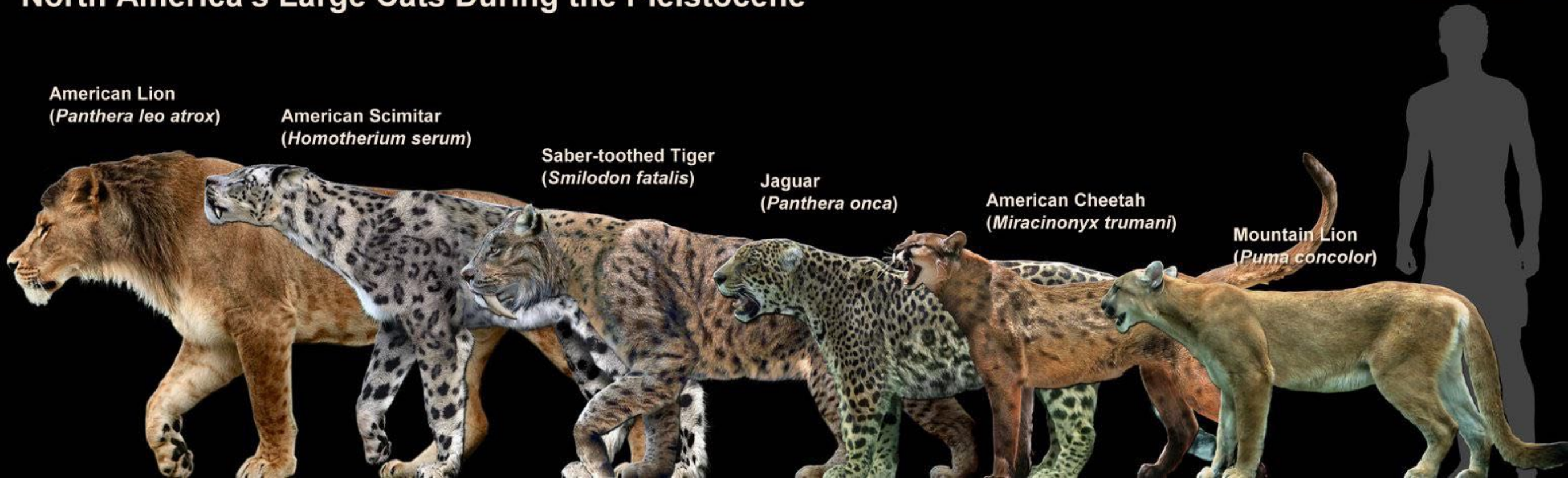
American Scimitar
(*Homotherium serum*)

Saber-toothed Tiger
(*Smilodon fatalis*)

Jaguar
(*Panthera onca*)

American Cheetah
(*Miracinonyx trumani*)

Mountain Lion
(*Puma concolor*)



ABOUT THE MOUNTAIN LION PROJECT:

This is the first detailed study of lions in the North Bay

Exciting science includes understanding lion movement, diet, behavior, survival and threats in this human-dominated landscape

Not only is it a research project, but a grassroots community conservation project

Works with the community to learn how to co-exist with lions and other animals

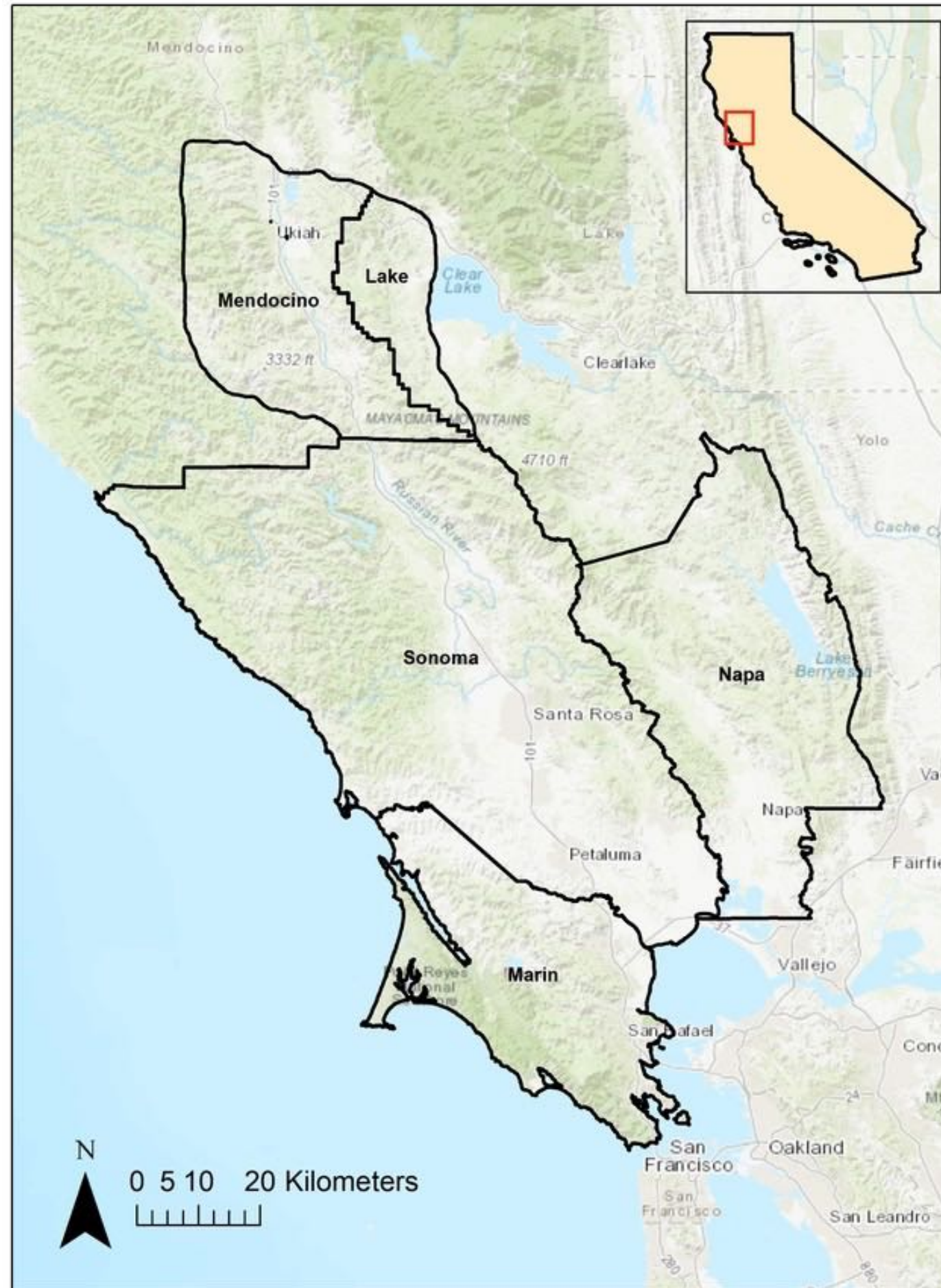
Comes up with solutions to mitigate conflict situations between people and wildlife

Engages and educates the community on the value of wildlife and a healthy ecosystem

Creates opportunities to connect people to nature and conservation through experiences, locally and in Africa



The study area where the Living with Lions Project is permitted to trap and collar mountain lions in the San Francisco North Bay includes Sonoma, Napa, Marin, Mendocino and Lake Counties.



Digital wildlife trail cameras are one of the key research tools which has changed the game for documenting elusive or cryptic animals.



This female mountain lion observing and stalking prey was captured by a remote wildlife camera.



Time and date stamps on the cameras inform us on mountain lion activity patterns.



From the graphs one can see mountain lions move around at any time of the day, but are mainly nocturnal.

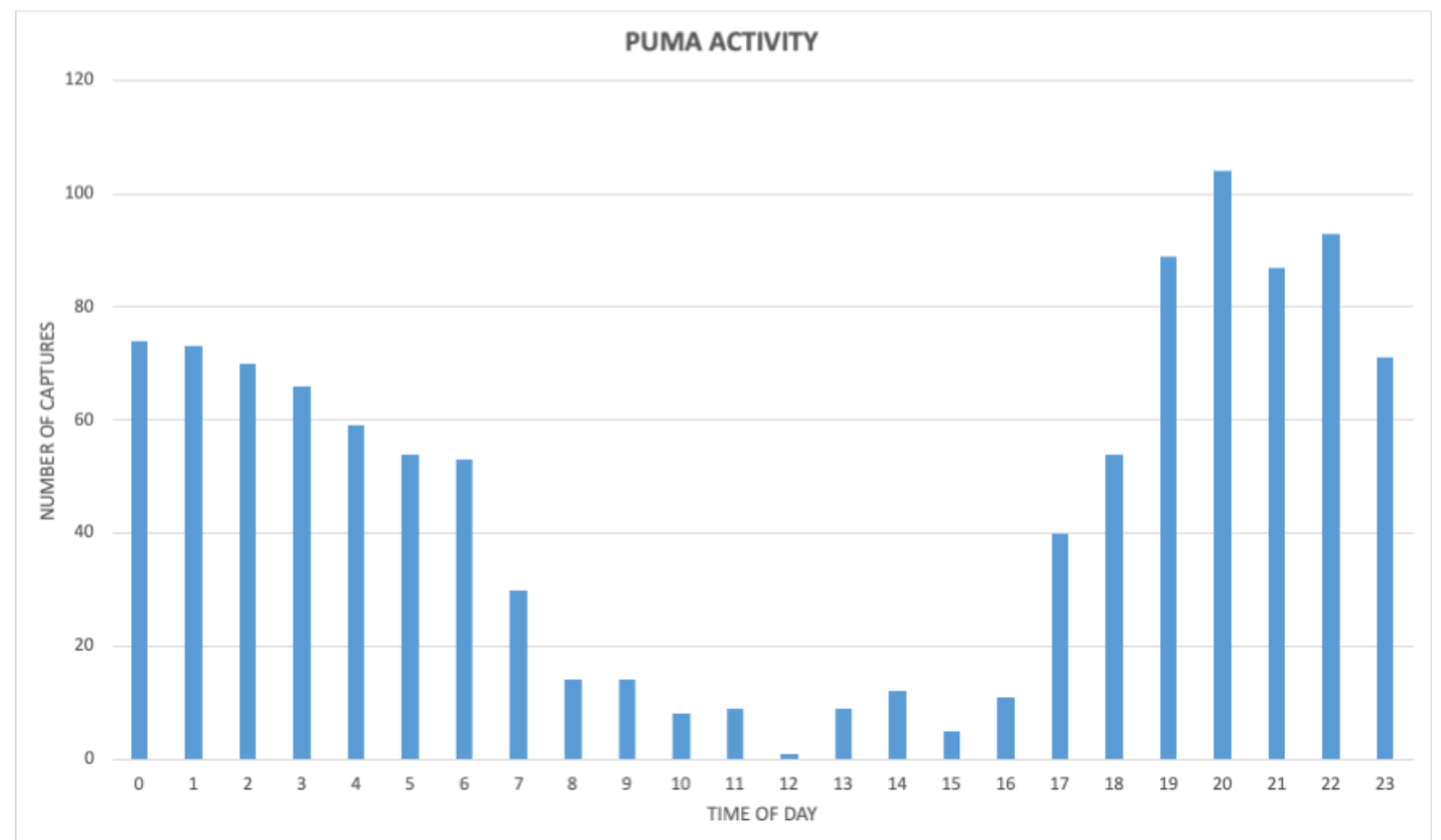


Figure. Trail camera activity showing the number of mountain lion captures according to time of day ($n=1100$).

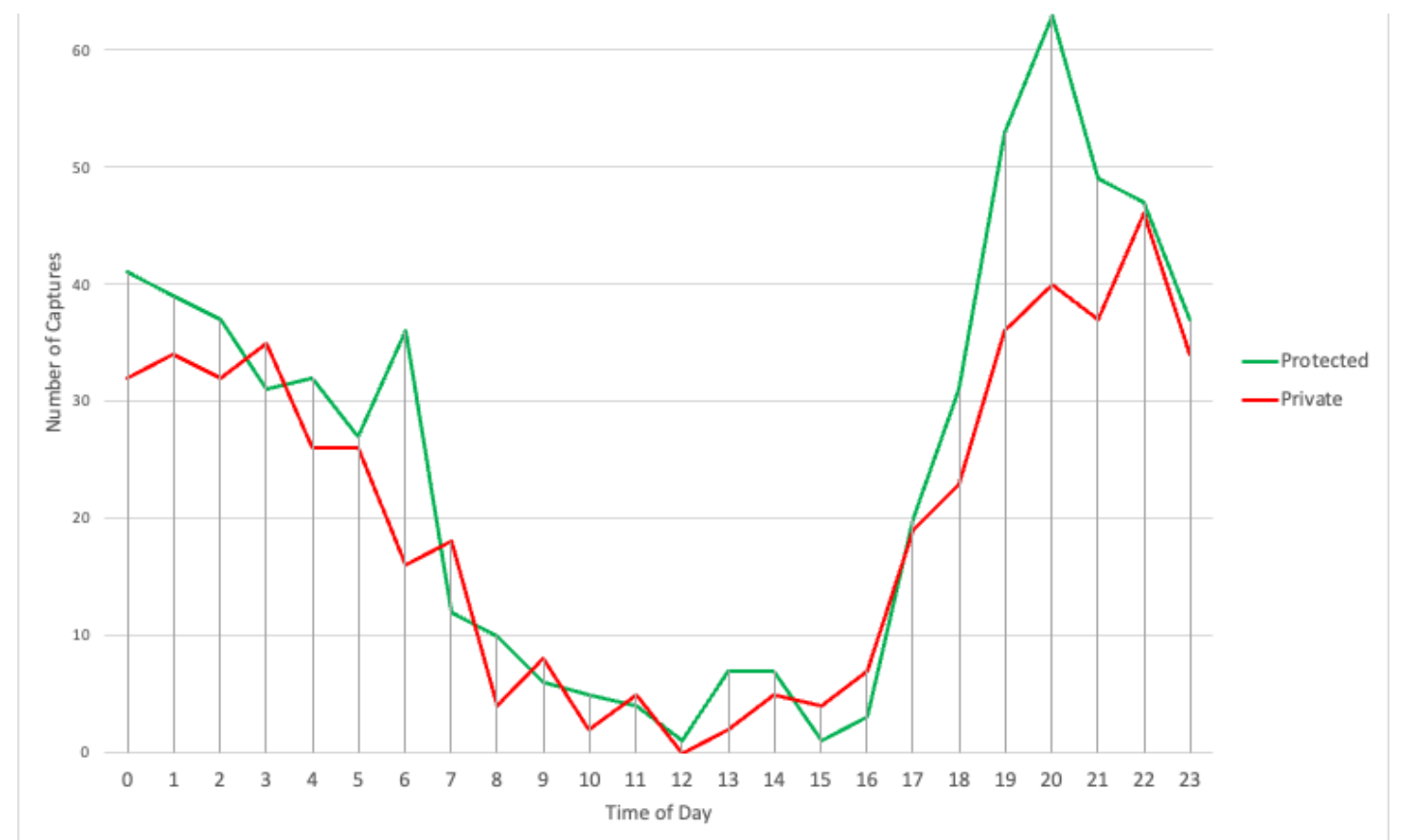


Figure. Trail camera activity showing the number of mountain lion captures according to time of day and land use (protected: $n=599$; private: $n=491$).

The use of satellite GPS tracking collars is essential for monitoring the movement and behavior of mountain lions.



In order to collar a lion, we need to capture it in a cage. These cages can be baited or un-baited traps.



Photo: Quinton Martins / All Hands Ecology

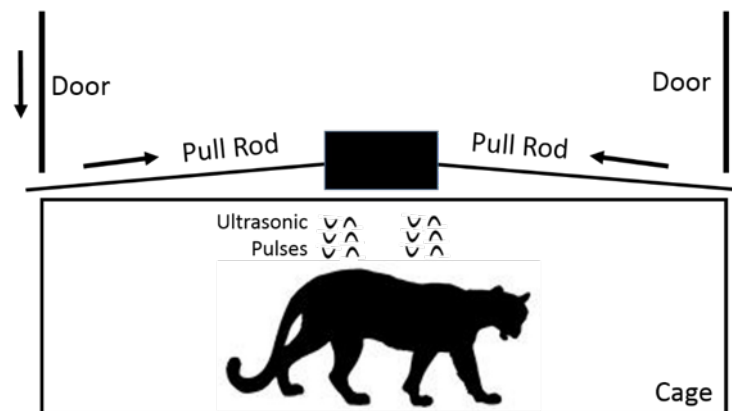
The electronic walk-through trap design by Martins & Martin eliminates non-target bycatch of animals and needs no bait. Electronic sensors detect the height of the animal to trigger the trap.



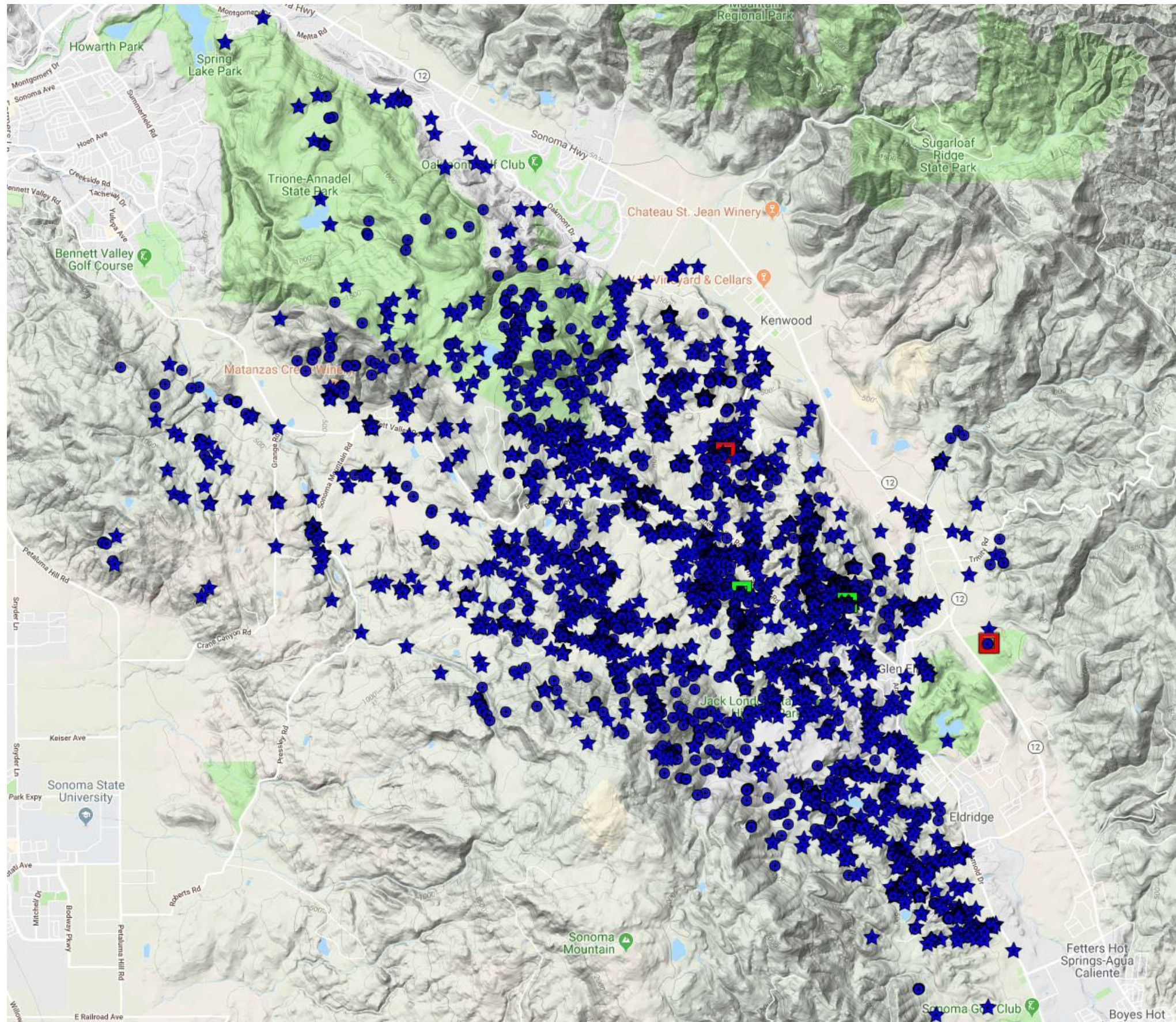
Photo: Quinton Martins

Once trapped, the lion is immobilized, samples collected and a GPS collar placed around its neck.

Dr. Martins' innovative, high-tech walk-through trap



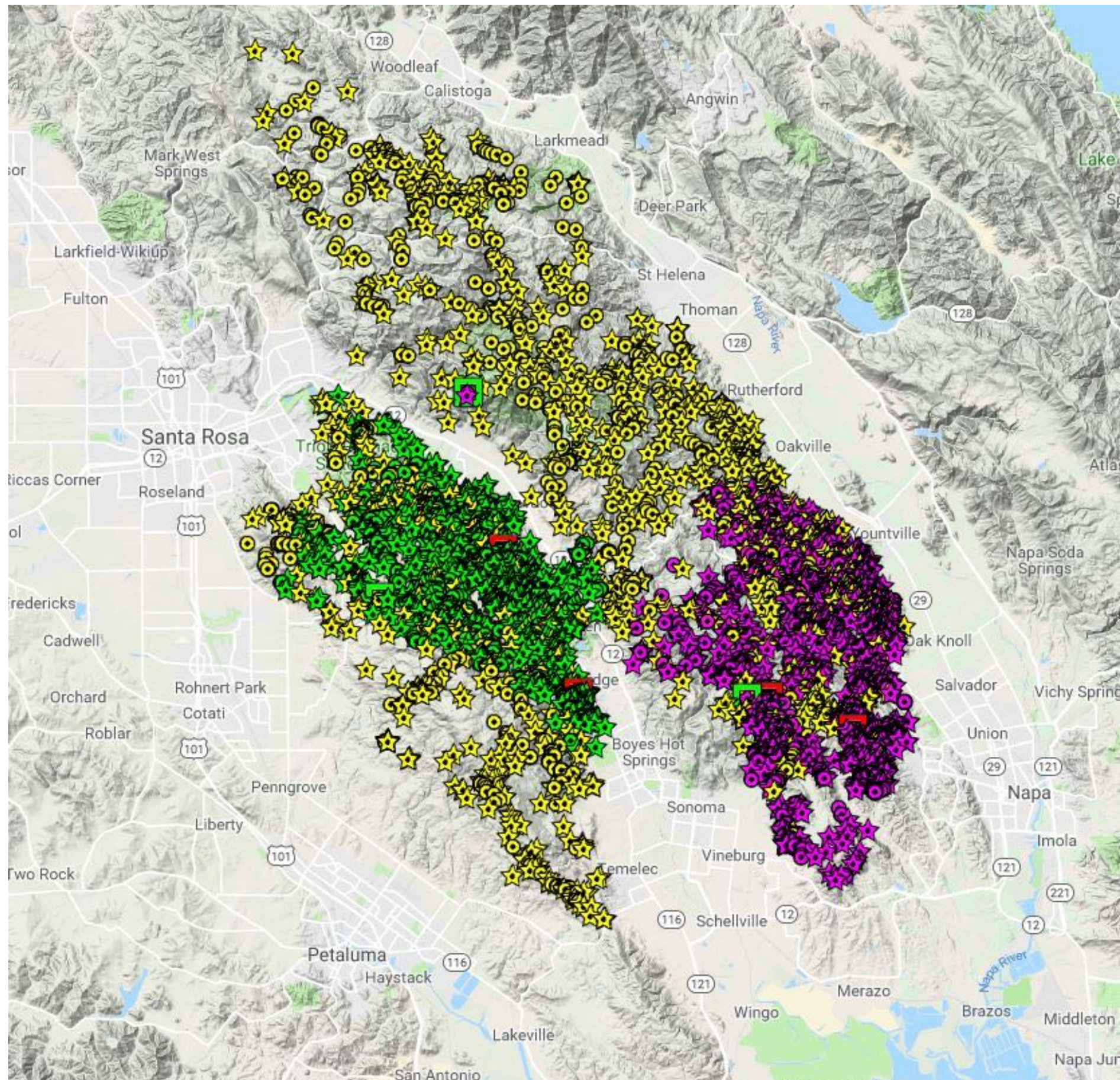
The GPS collars are programmed to take a location every 2 hours (12/day). Limiting the number of points extends the battery life of the collar which costs over \$3,000. With this schedule the collar could last 1.5 years before needing to be replaced.



GPS locations of female mountain lion P1 over a 1-year period. Blue stars = night points; blue circles = day points.

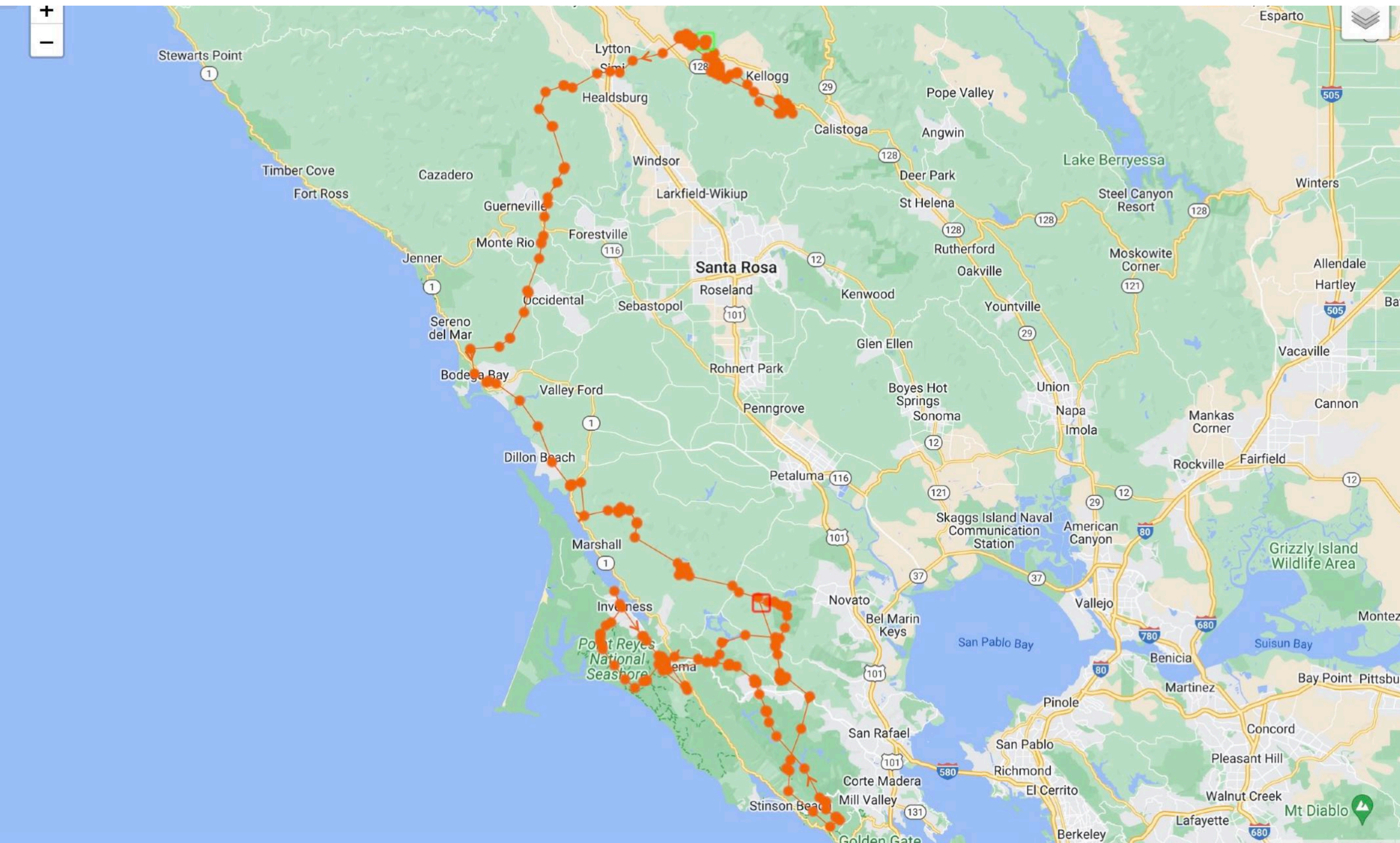
A territorial male aims to have 3 or 4 females in his range and tries to keep other males out of this area.

Females each have their own smaller territories and try not to overlap with other females too much, but overlap entirely with the dominant male.



GPS locations of male mountain lion P5 (yellow), female P1 (green) and female P4 (purple) over a 1-year period.

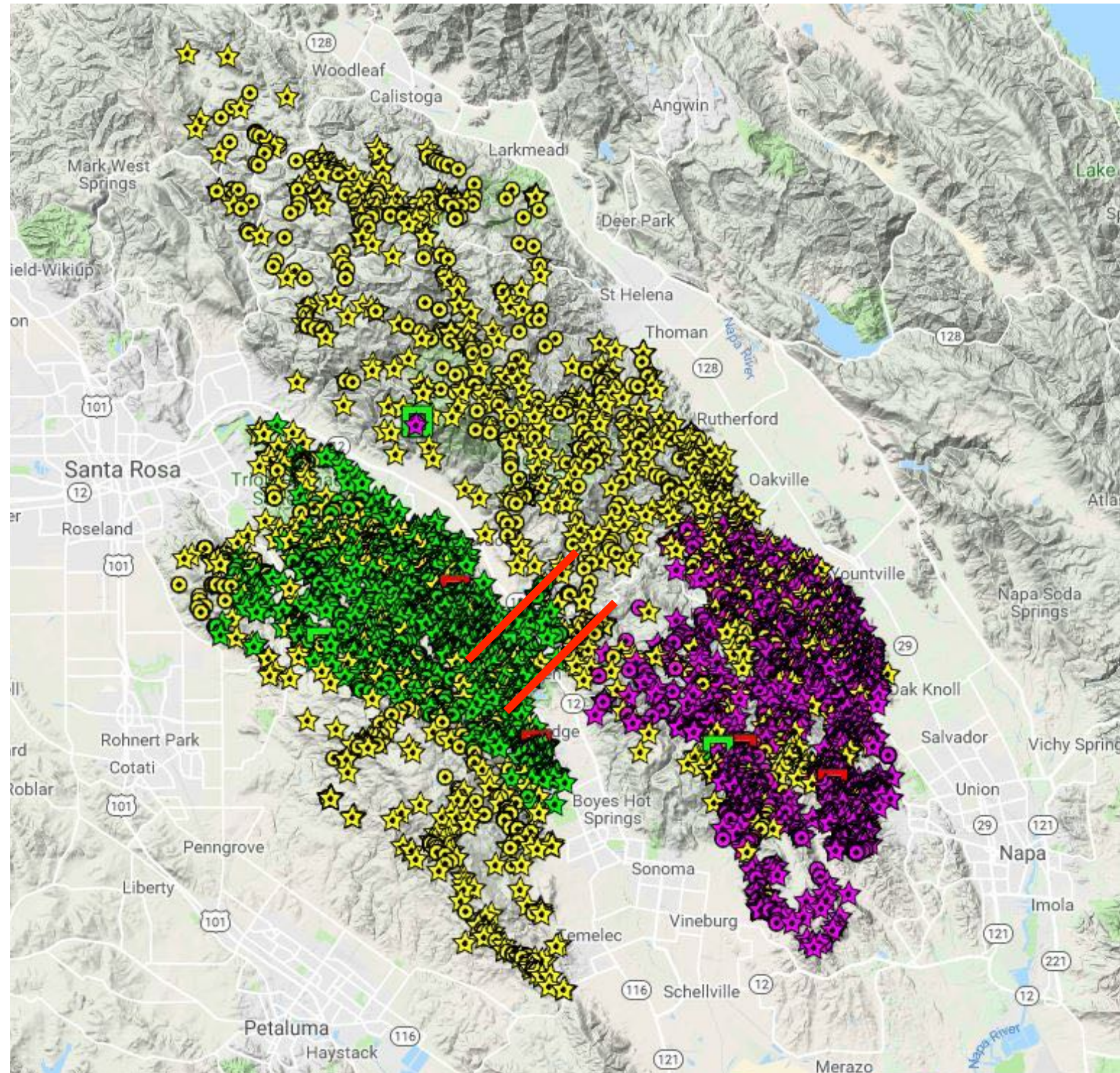
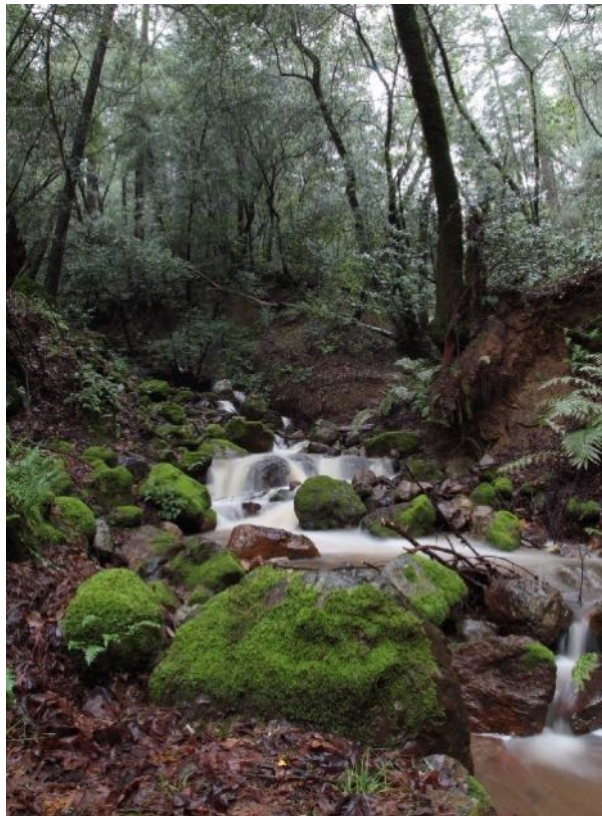
Young dispersal mountain lions do not have a territory. Satellite GPS collars have enabled researchers to track their movements over very long distances. It could take years before a young male is able to take over or establish his own territory. During this time, he will try and avoid adult males - encounters could end in confrontation and even death.



Young male mountain lion P36 movements over a 6 week period starting up north and almost reaching the Golden Gate Bridge before turning north again.

The data helps us understand how animals view the landscape, enabling us to identify or validate key wildlife corridors.

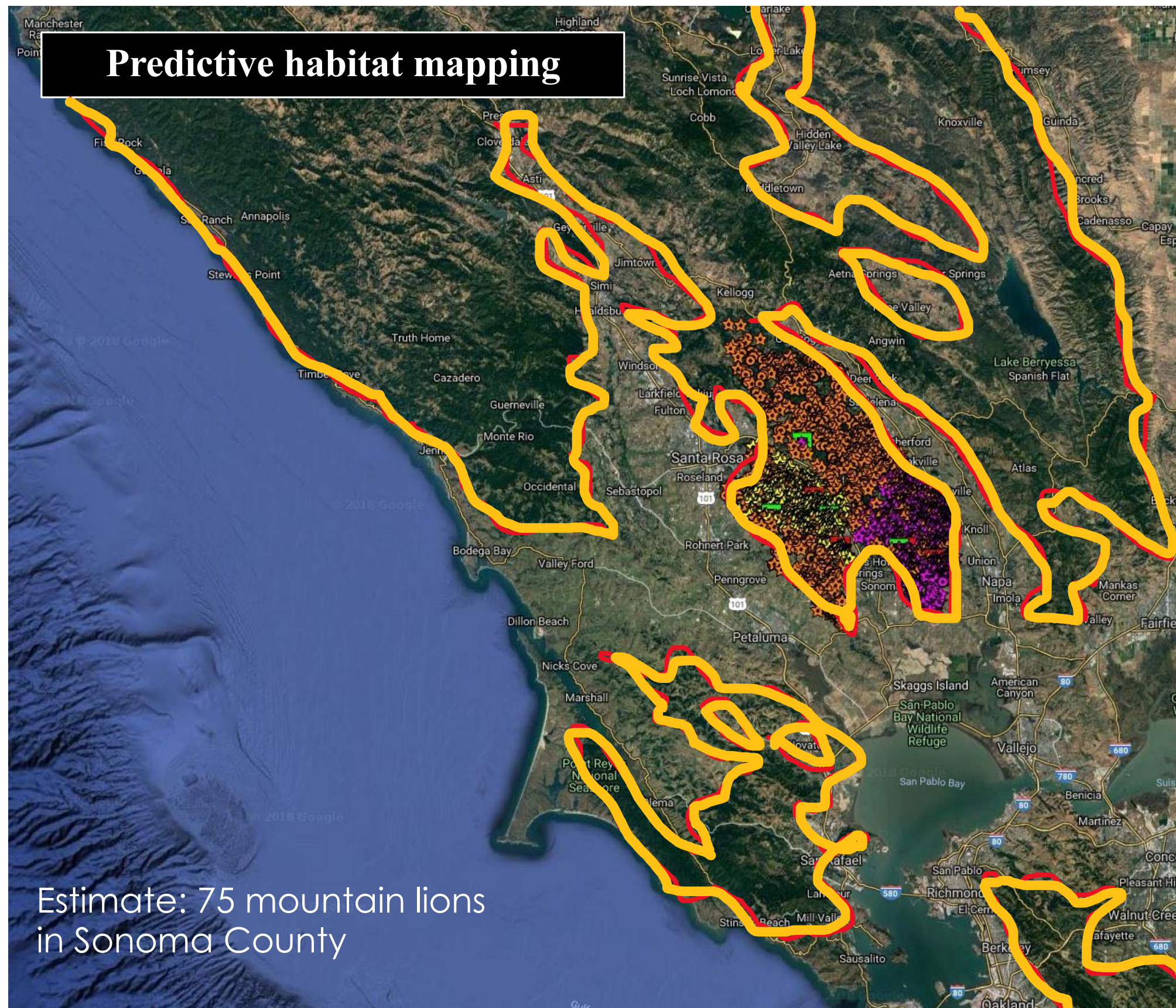
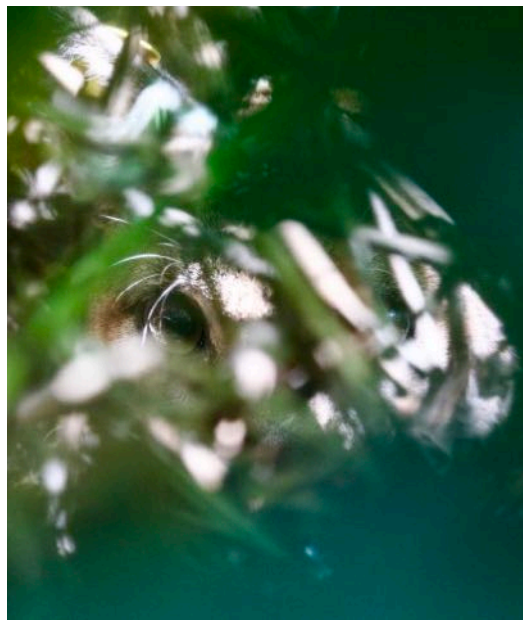
If mountain lions use these corridors, it is likely many other species are able to use these routes to navigate an already fragmented and human dominated landscape.



Concentration of GPS locations across Highway 12 shows a key crossing or wildlife corridor for mountain lions and other species

Overlaying mountain lion GPS data on satellite maps shows how these cats select vegetated areas, avoiding open grasslands as much as possible.

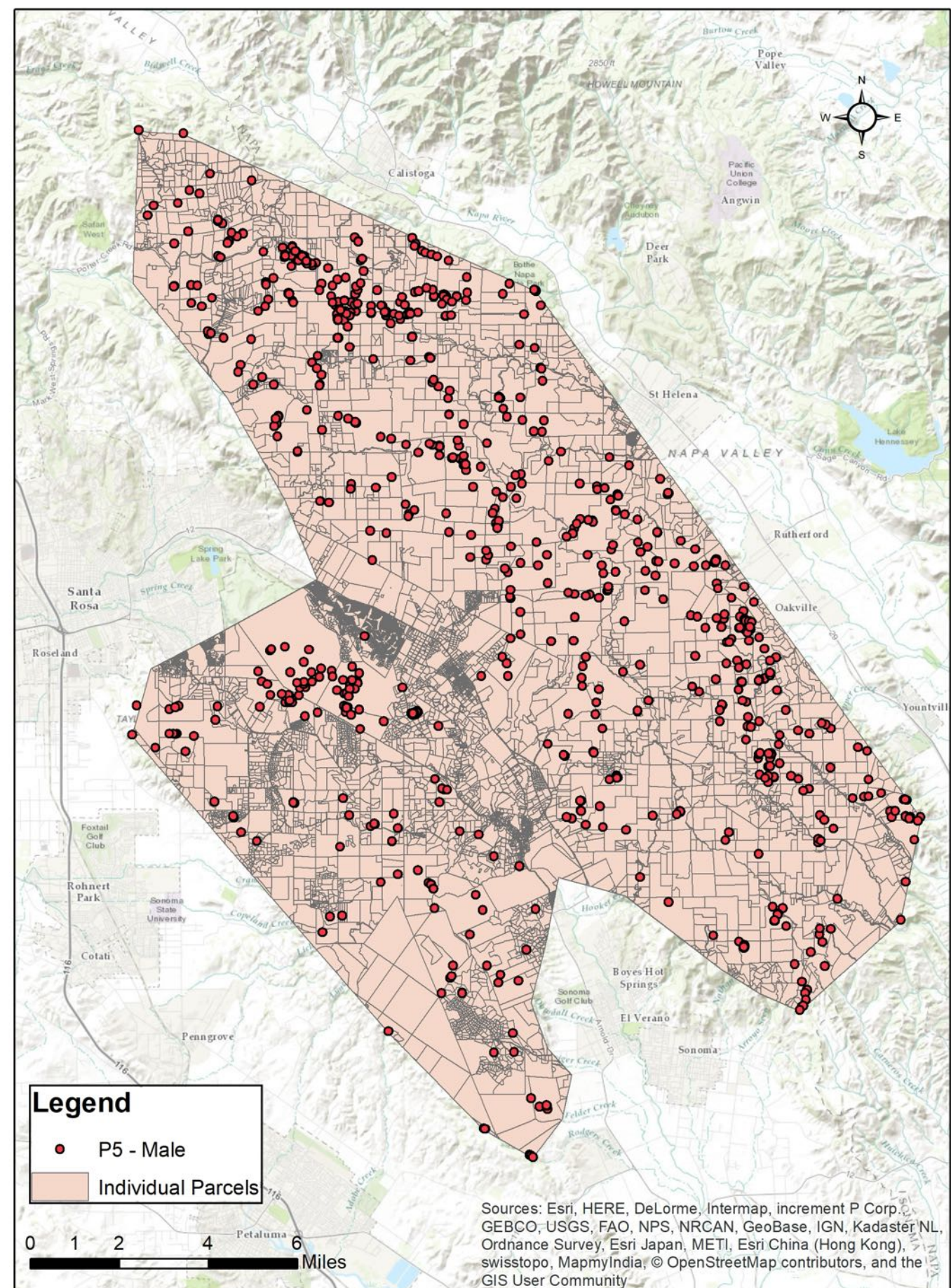
They require cover for hunting as they are ambush predators. They often use creek areas or drainages, and can use these as a way of getting through open or densely human inhabited areas.



Dark green areas on satellite maps indicate suitable mountain lion habitat.

San Francisco's North Bay has a high human population overlapping with natural areas. As such, a significant part of mountain lion range is on private land, where one male lion territory can cover more than 10,000 private land parcels.

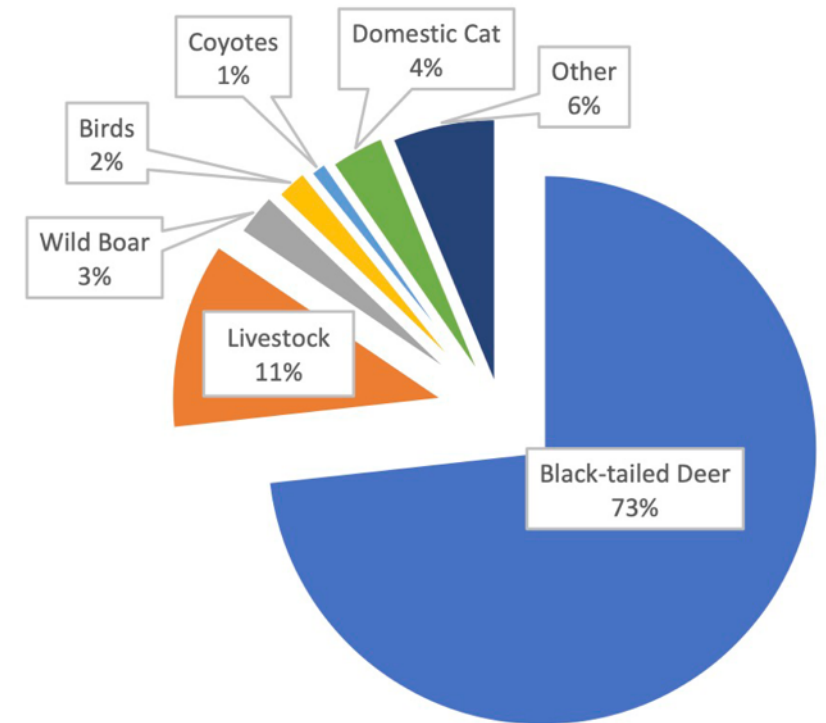
Most individual land parcels are fenced, often with multiple fences. Mountain lions seem to be chasing deer into fences to increase hunting success. Lions can jump 12 - 15ft high, so can cross most fences. However, other animals can be trapped or find it difficult to navigate this landscape.



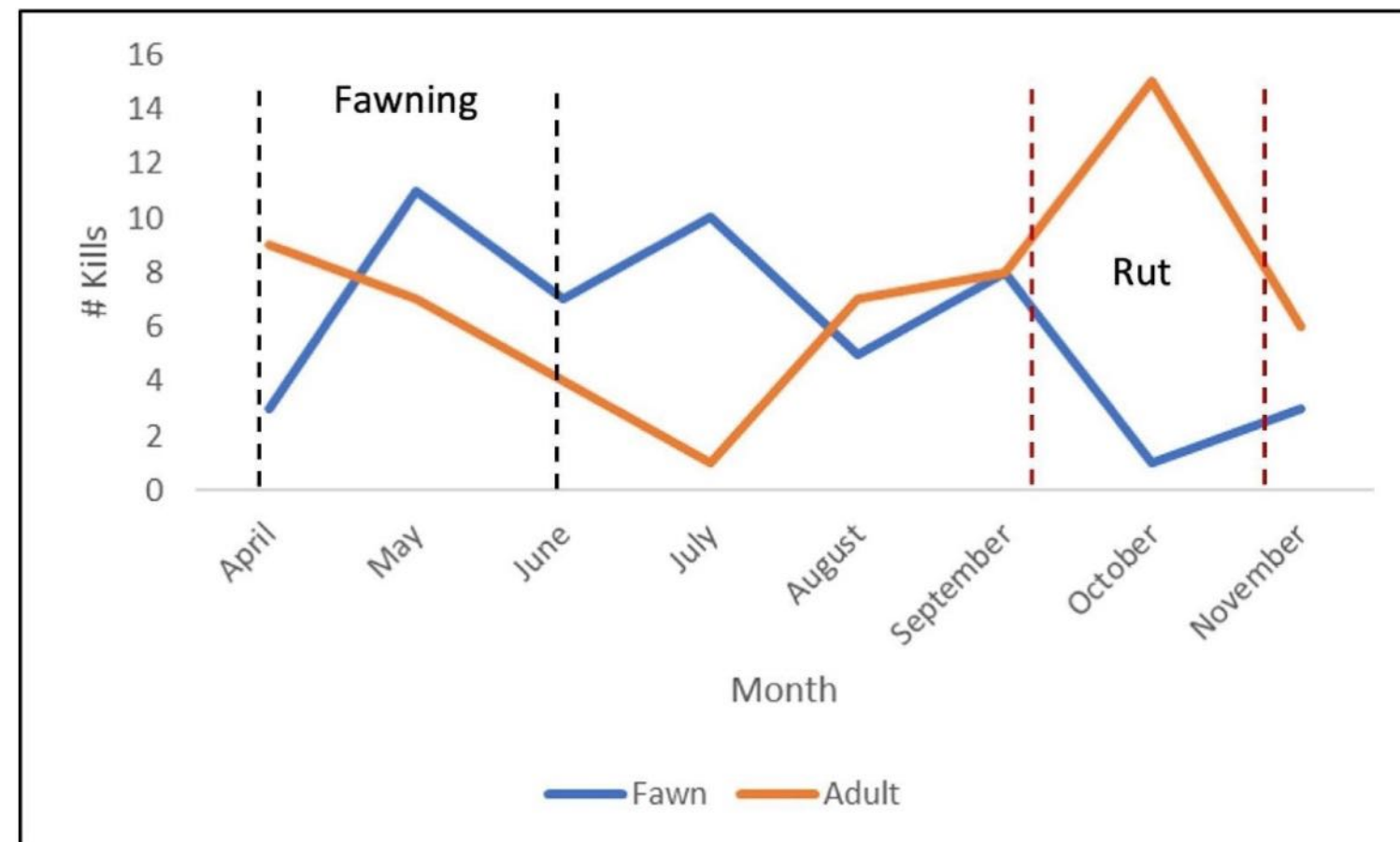
GPS locations of male mountain lion P5 overlaid on a parcel map of Sonoma and Napa.

The primary prey for mountain lions in our study area are black-tailed deer. Unprotected livestock and house cats are second and third highest on their diet. Other prey consumed include, amongst others: coyotes, bobcats, opossums, raccoons, wild boar and various bird species.

Deer
Goats and Sheep
 Cats
 Boar
 Birds
 Coyotes
 Foxes, raccoons, opossums, rabbits, rodents



During the fawning season mountain lions tend to focus on feeding on these readily available prey items, while later in the year, they kill more adult deer, particularly bucks during the rutting season when they are distracted by the females.



Mountain lion deer fawns (n=48) and adult deer (n=57) kills recorded in relation to deer fawning and rutting seasons with: April - November 2021

Many people have hobby livestock (sheep and goats) in the North Bay, most of which are not adequately protected. Any mountain lion is likely to kill unprotected livestock at some point in its life. This conflict with hobby stock holders in particular, is the leading cause of mortality of lions in California.

The safest way to protect small numbers of sheep or goats is to house them in a fully-enclosed predator-proof shelter at night.

We partner with Sonoma County Wildlife Rescue training the livestock to go into the pen at night, and remotely letting them out in the morning, making it easier to manage their animals.



Public education is one of the most important aspects of our work: Working one-on-one with landowners to help them protect their animals; conducting public presentations to local communities sharing information on the habits, movement and behavior of mountain lions; and lastly, setting up school programs to educate children about mountain lions and the value they have in our lives and ecosystems.



Liz Martins with a school group enjoying learning about mountain lions through the All Hands Ecology Our Wild Neighbors program.

Thank You!!

This project has been made possible through the generous support of our donors.

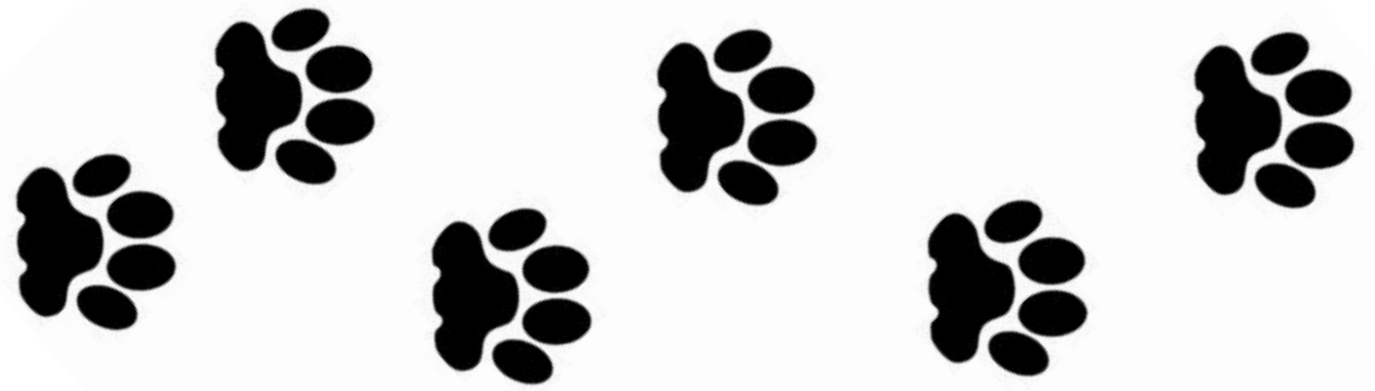


Photo: Jim Coddington/Audubon Canyon Ranch

CONTACT US

TRUE WILD CONSERVATION FOUNDATION is a 501(3)c nonprofit charitable organization (EIN# 39-5067030).

Address: PO Box 905, Glen Ellen, CA, 95442

Email: quinton@truewild.org

Website: www.truewild.org

Telephone: (+1) 707.721.6560

