



California Gray Wolf Conservation and Management Annual Report 2025

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Cover photo

WHA41F, a yearling female in the Whaleback pack in Siskiyou County.
Photo courtesy of Axel Hunnicutt, CDFW.

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Hallelujah Junction Wildlife Area, Sierra County. Photo courtesy of the California Wolf Project, UC Berkeley.



EXECUTIVE SUMMARY

BEY10M, in Sierra County after being fitted with a GPS collar. Photo courtesy of Malia Brytus; California Wolf Project, UC Berkeley.

EXECUTIVE SUMMARY

In 2025, the California Department of Fish and Wildlife (CDFW) released a 10-year report summarizing the state's management and conservation activities for gray wolves (*Canis lupus*; hereafter, wolves) from 2015 through 2024. Moving forward, CDFW will produce annual reports summarizing wolf recovery and management activities throughout California – this is the first of those reports and summarizes activities in 2025.

Wolves were extirpated in California by 1924 and naturally returned to the state in 2011. California's first contemporary pack was established in 2015, and by the end of 2025, the state's population had grown to nine packs with a minimum population of 55 wolves. Consistent with the 2016 Conservation Plan for Gray Wolves in California, CDFW continues to monitor the wolf population and its distribution, works to mitigate wolf-livestock conflict, and conducts significant outreach to livestock producers and the public.

KEY DEVELOPMENTS IN 2025

- As of December 31, 2025, the minimum number of wolves in California was 55, a 10% increase from the previous year. The minimum count is the number of wolves verified alive at the end of the year and included wolves in nine packs, four Areas of Wolf Activity (AWAs), and multiple dispersing animals.
- Wolf packs in California ranged from two to nine individuals, with an average size of 4.1 wolves at the end of 2025. During summer, the Whaleback pack included 16 animals, the largest number of any pack during 2025.
- Four new packs were recognized during 2025: Ashpan, Grizzly, Ishi, and Tunnison.
- One pack has been declared inactive at the end of 2025: the Ishi Pack is no longer recognized based on data suggesting it and the adjacent Ice Cave pack were likely the same group of wolves.
- CDFW captured 19 wolves across five packs for the purpose of collaring. This significant increase compared to prior years was due to the increased use of helicopter-based capture efforts and knowledge of the locations of existing collared wolves across the landscape.
- Twelve dispersal events were documented in 2025, with four wolves immigrating into California, one California-born wolf dispersing north into Oregon, and seven wolves dispersing within the state.
- Six packs were documented to have reproduced, with a minimum of 32 pups born in 2025.
- Twelve wolf mortalities were documented in 2025, the highest since wolves recolonized California. Four wolves from the Beyem Seyo pack were removed by CDFW as a management action due to chronic livestock depredation. This was the first lethal removal of wolves in California in recent history. The eight other mortalities were a result of vehicle collisions, undetermined causes, or remain under investigation.

- Sarcoptic mange was documented for the first time for wolves in California, with an outbreak in the Yowlumni pack. The pack did not successfully reproduce in 2025 and its size decreased from nine wolves in 2024 to four in 2025. These changes may have been influenced by the outbreak of this naturally occurring disease.
- The number of wolf-livestock depredations in 2025 increased significantly from earlier years. In 2025, 267 wolf-livestock depredation investigations occurred, up from 74 in 2024. Of those investigations, 198 were confirmed or probable losses due to wolves. Of the confirmed or probable losses for 2025, 90 were attributed to the Beyem Seyo pack.
- CDFW's wolf-livestock compensation program continued through 2025, distributing \$354,795.47 to 38 applicants in seven counties for livestock deaths and injuries determined to be caused or probably caused by wolves.
- CDFW's research partnerships expanded in 2025. The University of California Berkeley's California Wolf Project (funded in part by CDFW) and University of California Davis's Wolf Project continued through 2025. New research projects on sarcoptic mange and pathogen/parasite surveillance in wolves also commenced.
- Errors were identified in the historical wolf-livestock depredation investigation totals reported in Table 6 of CDFW's report *Ten Years of Gray Wolf Conservation and Management in California, 2015–2024*. The correct historical numbers are presented in this report (Tables 8 & 9).



Yearling wolf in the Whaleback pack, Siskiyou County. Photo courtesy of Axel Hunnicutt, CDFW.



BACKGROUND

CDFW biologists monitor an anesthetized wolf in Lassen County. Photo courtesy of Malia Brytus; California Wolf Project, UC Berkeley.

BACKGROUND

HISTORY OF WOLVES IN CALIFORNIA

Gray wolves are native to California with anecdotal accounts documenting their presence from the 1700s to early 1900s. The final wolves known to be killed in California were an adult male in eastern San Bernardino County in 1922 and an adult male in Lassen County in 1924. No wolves were subsequently confirmed in California until December 28, 2011, when a radio-collared wolf (OR7) entered California from Oregon. Wolves had been recolonizing northeastern Oregon since 2008, as descendants of the wolves reintroduced to central Idaho and Yellowstone National Park in 1995-1996 continued to expand wolf distribution in the Pacific Northwest. Although OR7 eventually returned to Oregon, a reproducing pack (Shasta Pack) was detected in 2015 in Siskiyou County. While that pack did not persist beyond 2015, another pack (Lassen Pack) was detected in 2016 in southern Lassen County and northern Plumas County. The Lassen Pack has had an annual litter since 2017 and wolves have since continued expanding their range in the state, primarily in the northeastern counties. In 2023, CDFW confirmed the Yowlumni Pack as the first pack in the southern Sierra Nevada, over 200 miles from the nearest known pack in northern California. A maximum of ten packs have been reported, with nine packs confirmed at the end of 2025.

LEGAL STATUS OF GRAY WOLVES

The gray wolf was listed as endangered in most of the continental U.S. in 1978 under the federal Endangered Species Act (ESA). While gray wolves in Idaho, Montana, Wyoming and parts of eastern Oregon and Washington are no longer listed pursuant to the ESA, they remained listed through 2025 in much of the contiguous U.S., including California.

Wolves are also protected under state law. On June 4, 2014, prior to the establishment of known breeding pairs or packs in the state, gray wolves were listed as endangered under the California Endangered Species Act (CESA) and remain so today.

A cooperative agreement with the U.S. Fish and Wildlife Service (USFWS) authorizes CDFW to manage and conserve federally listed species, including wolves, throughout the state. In December 2016, CDFW finalized the Conservation Plan for Gray Wolves in California to guide and inform current and future policy and actions to conserve and manage wolves in California.

DEFINING WOLF PACKS AND BREEDING PAIRS

California's Conservation Plan for Gray Wolves in California (2016; hereafter the 'Wolf Plan') defines a wolf pack as "two or more wolves traveling together and using a definable area." CDFW recognizes wolf groups as packs when it detects either 1) multiple wolves and evidence of reproduction, or 2) two or more wolves at least four times within a geographically congruent area within a six-month period. When two or more wolves are detected outside of a known pack territory but neither of the pack criteria is met, CDFW designates that area as an Area of Wolf Activity (AWA).

The Wolf Plan defines a breeding pair as “at least one adult female and at least one adult male and at least two pups that survive until December 31.” Not all packs qualify as breeding pairs each year. For example, a pair of wolves having a litter of one or only one surviving pup through the end of the year would still be a pack, but not a breeding pair. The distinction between breeding pairs and packs is important, because the Wolf Plan denotes three phases of wolf re-establishment and population growth, based on the number of confirmed breeding pairs over time. Additional information on these phases can be found in [Part I](#) of the Wolf Plan.



A Whaleback pack wolf, Siskiyou County. Photo courtesy of the California Wolf Project, UC Berkeley.



POPULATION MONITORING

Wolf tracks of the Ashpan pack in Shasta County. Photo courtesy of CDFW.

POPULATION MONITORING

MONITORING TECHNIQUES

CDFW uses a variety of techniques to monitor wolf presence, pack size, reproductive status, territory size, survival, and dispersal events. Wolf monitoring activities occur year-round and include direct observation, camera trap surveys, audio (howl) surveys, track counts, and genetic sample collection (primarily scats). CDFW also relies on and investigates credible [Gray Wolf Sighting Reports](#) from the public and agency partners.

Focused collection and analysis of genetic material from scat, hair, saliva, and other biological samples have been critical for wolf population monitoring in California. Results from these analyses have led to confirmation of wolf presence in novel areas, identification of dispersing individuals, estimates of litter sizes, and determining the origins and relatedness of individual wolves and breeding pairs. Genetic analysis is also used to confirm animal sex and coat color (gray vs. black). CDFW's Wildlife Forensic Laboratory has led these analyses.

Through 2025, a total of 169 individual wolves had been detected in California since 2011. 165 of those wolves were detected via field monitoring and genetic analysis, and four were detected uniquely by their GPS collars. These wolves were collared by Oregon Department of Fish and Wildlife and dispersed into California.

Because wolf populations fluctuate over the course of each year (due to the birth of pups in spring, followed by the deaths and/or dispersal of some pups and older wolves prior to winter), CDFW, as well as other western state wildlife agencies, uses year-end (December 31) minimum counts to determine the minimum population size once each year. Minimum counts are calculated for each wolf group utilizing the techniques and methods described above as well as aerial surveillance.



CDFW law enforcement officers and biologists monitoring wolves in Sierra Valley, Sierra County. Photo courtesy of CDFW.

POPULATION STATUS AND DISTRIBUTION

Since 2015, the gray wolf population in California has grown in number of packs, population, and total area occupied within the state. As of 31 December 2025, CDFW's minimum count was 55 individuals in nine known packs and four areas of wolf activity spanning portions of 10 counties (Table 1 & Figure 1). Of the nine packs, three were successful breeding pairs in 2025 (Table 2). This is the first time the number of breeding pairs has been less than the previous year, despite successful reproduction being recorded in six packs (an all-time high). The decline in breeding pairs in 2025 can be partially attributed to the Department's removal of the Beyem Seyo pack, as well as small or unsuccessful litters in previous breeding pairs such as the Lassen and Yowlumni packs.

Table 1. Minimum (min) population counts, packs, and breeding pairs of gray wolves in California, 2015 - 2025.

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Year-End Min. Population Count	1	2	5	7	7	7	16	18	44	50	55
No. of Packs	1	1	1	1	1	2	3	3	7	7	9
No. of Breeding Pairs	0	0	1	1	1	1	2	2	4	5	3

Table 2. Known wolf groups in California by county, breeding pair status, and year-end minimum count, 2025.

WOLF PACK		COUNTY	BREEDING PAIR	2025 YEAR-END MINIMUM COUNT
PACKS	ASHPAN	Shasta	No	2
	DIAMOND	Lassen/Plumas	No	2
	GRIZZLY	Plumas	No	2
	HARVEY	Lassen/Shasta	Yes	7
	ICE CAVE	Plumas/Tehama	Yes	6
	LASSEN	Lassen/Plumas	No	4
	TUNNISON	Lassen	No	3
	WHALEBACK	Siskiyou	Yes	7
	YOWLUMNI	Tulare/Kern	No	4
AREAS OF WOLF ACTIVITY	Central Lassen	Lassen	-	2
	Southern Plumas	Plumas	-	2
	Eastern Shasta	Shasta	-	2
	Eastern Tehama	Tehama	-	3
OTHER	Dispersing wolves			9
YEAR-END TOTAL			3	55

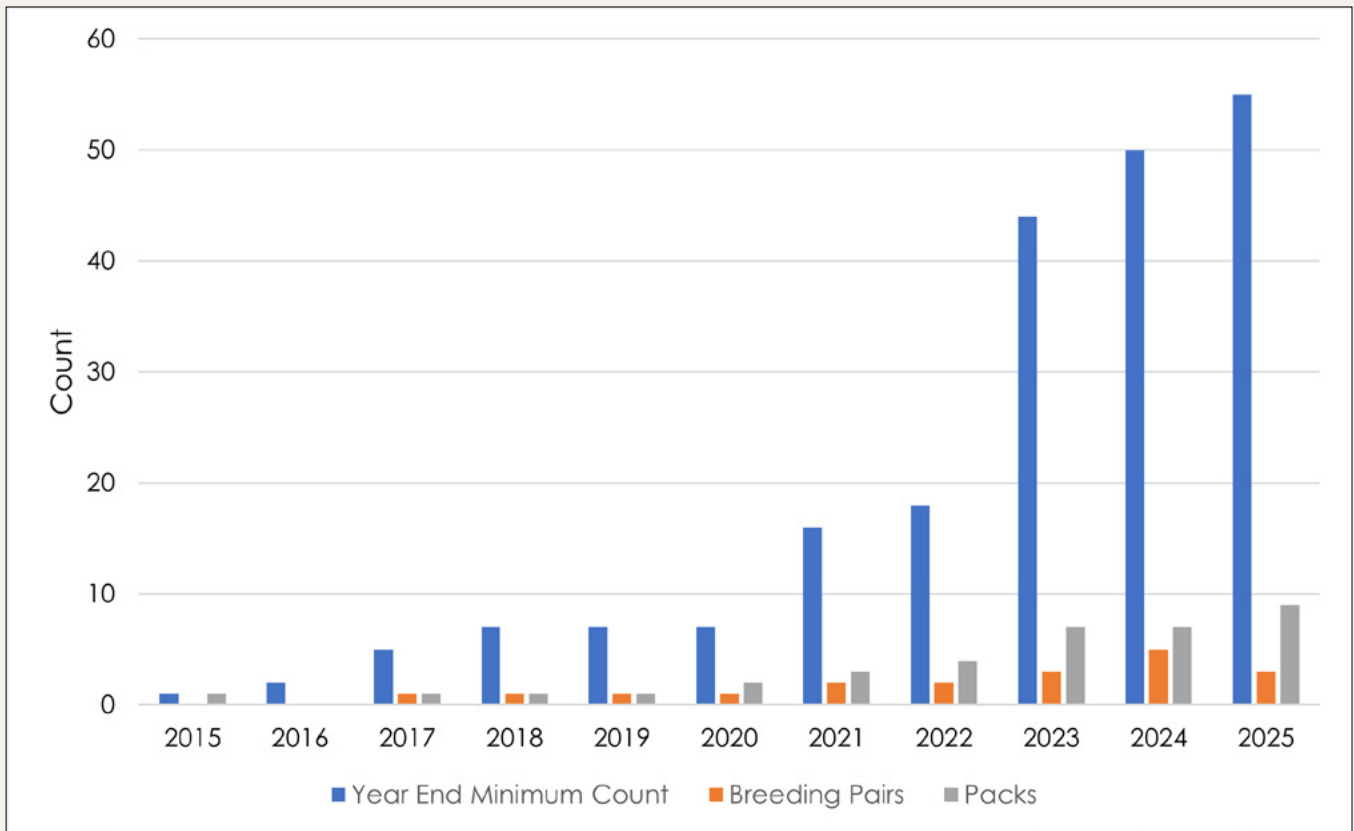


Figure 1. Gray wolf population minimum counts, known packs, and breeding pairs in California, 2015 - 2025.

Most of the known wolf packs and areas of wolf activity occur in the northeastern portion of the state, as California’s population originated from wolves dispersing from Oregon. The first contemporary pack to establish a territory in California was the Shasta pack (Siskiyou County) in 2015, with subsequent pack establishments in additional northeastern counties thereafter (Figure 2). The Yowlumni pack in the southern Sierra Nevada mountains (Tulare County) was confirmed in 2023 and is the first known pack outside of northeastern California. It is thought to be the southernmost population of gray wolf in North America (aside from Mexican wolves). Additional information on each pack and its history can be found in [California’s Known Wolves – Past and Present](#).

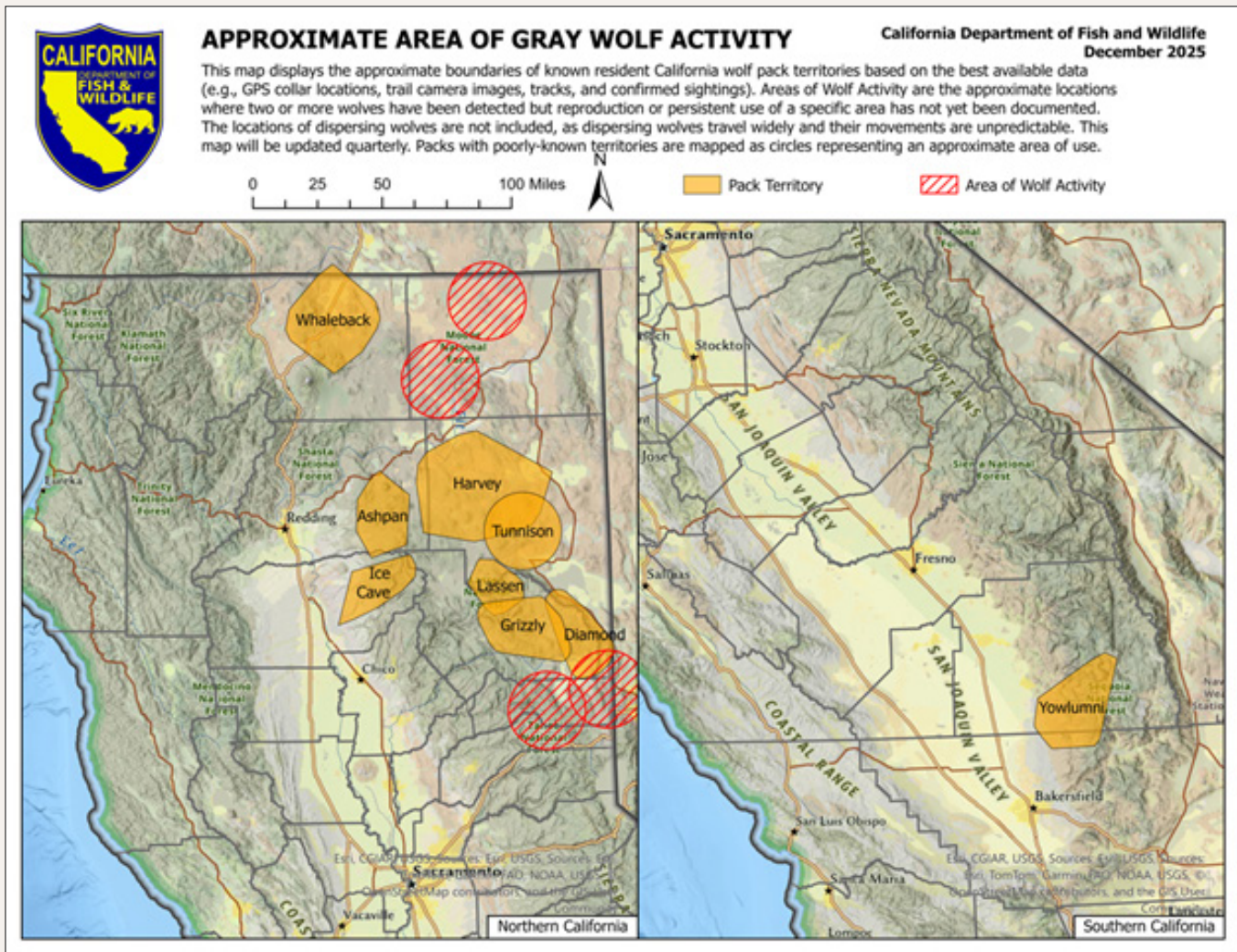


Figure 2. Approximate area of wolf activity as of December 2025 in California.

CAPTURE EFFORTS

The placement of satellite GPS-collars on wolves helps CDFW determine pack territories, locate den and rendezvous sites, guide scat and camera trap surveys, monitor survival, track dispersal events, and help mitigate potential conflicts with livestock. In 2025, CDFW captured 22 wolves. Nineteen of those captures were for the purpose of collaring and 18 GPS collars were deployed across five packs (Table 3). The other three captures were for lethal removal. Capture success significantly increased in 2025 compared to previous years, and most wolves were captured with the aid of a helicopter. While helicopters allowed CDFW to capture larger numbers of wolves, the method largely relies on using existing collars to direct the helicopter crew to very specific locations. To date, helicopter capture of wolves in uncollared groups has been unsuccessful in California.

Table 3. Gray wolves captured and collared in California, 2025.

CAPTURE DATE	METHOD	WOLF ID	PACK NAME	AGE CLASS	SEX	PURPOSE
01/14/2025	Helicopter	LAS23F**	Beyem Seyo	Adult	Female	Collaring
01/14/2025	Helicopter	BEY01F	Beyem Seyo	Adult	Female	Collaring
01/14/2025	Helicopter	BEY09M	Beyem Seyo	Yearling	Male	Collaring
01/14/2025	Helicopter	BEY10M	Beyem Seyo	Yearling	Male	Collaring
01/19/2025	Helicopter	WHA08M	Beyem Seyo	Adult	Male	Collaring
01/22/2025	Helicopter	HAR11M	Harvey	Yearling	Male	Collaring
01/22/2025	Helicopter	HAR04F	Harvey	Yearling	Female	Collaring
01/22/2025	Helicopter	HAR05F	Harvey	Yearling	Female	Collaring
01/27/2025	Helicopter	WHA01F	Whaleback	Adult	Female	Collaring
01/27/2025	Helicopter	WHA29F	Whaleback	Yearling	Female	Collaring
01/29/2025	Helicopter	HAR07M	Harvey	Yearling	Male	Collaring
01/29/2025	Helicopter	WHA05F**	Harvey	Adult	Female	Collaring
05/23/2025	Ground	BEY03F	Yowlumni	Adult	Female	Collaring
08/25/2025	Ground	ICE04F	Ice Cave	Juvenile	Female	Collaring
08/26/2025	Ground	ICE08M*	Ice Cave	Juvenile	Male	Collaring
10/15/2025	Helicopter	WHA08M	Beyem Seyo	Adult	Male	Removal
10/16/2025	Helicopter	LAS23F	Beyem Seyo	Adult	Female	Removal
10/17/2025	Helicopter	BEY01F	Beyem Seyo	Adult	Female	Removal
11/15/2025	Helicopter	WHA01F**	Whaleback	Adult	Female	Collaring
11/15/2025	Helicopter	WHA26F	Whaleback	Yearling	Female	Collaring
11/15/2025	Helicopter	WHA32M	Whaleback	Yearling	Male	Collaring
11/15/2025	Helicopter	WHA41F	Whaleback	Juvenile	Female	Collaring

*Collar not deployed due to the size of the animal not meeting collaring criteria.

**Recollar -collar replaced with new collar

2025 KNOWN DISPERSAL EVENTS

It is common for wolves reaching sexual maturity to leave their natal pack, or disperse, in search of a mate. Individual wolves observed outside of pack territories are likely dispersing wolves. In 2025, CDFW documented a minimum of 12 dispersal events. Over ten years (2015–2025), CDFW detected or monitored a total of 46 wolf dispersal events throughout California, including both immigration into and emigration out of the state (Figures 3 & 4). Over the last five years, the number of California-born intrastate dispersals has increased. These events included collared wolves and uncollared wolves detected through genetic samples (Table 4 & Appendix 1).

Table 4. Recorded dispersal events by gray wolves in California, 2025.

NO.	WOLF ID	YEAR BORN	ORIGIN PACK/STATE	DISPERSAL DESTINATION	FINAL PACK	METHOD OF DETECTION
1	BEY03F	2023	Beyem Seyo	Tulare Co.	Yowlumni	Ground Capture
2	BEY08F	2024	Beyem Seyo	Sierra Co.	AWA	Genetic
3	BEY09M	2024	Beyem Seyo	Oregon	N/A	GPS Collar
4	BEY10M	2024	Beyem Seyo	Siskiyou Co.	N/A	GPS Collar
5	DIS05M	Unknown	Unknown – Outside CA	Plumas Co.	Grizzly	Genetic
6	DIS06M	Unknown	Unknown – Outside CA	Modoc Co.	AWA	Genetic
7	DIS07M	Unknown	Unknown – Outside CA	Modoc Co.	AWA	Genetic
8	HAR07M	2024	Harvey	Lassen Co.	N/A	GPS Collar
9	ICE03M	Unknown	Unknown – Outside CA	Plumas/Tehama Co.	Ice Cave	Genetic
10	LAS30M	2021	Lassen	Plumas Co.	Diamond	Genetic
11	LAS37F	2023	Lassen	Plumas Co.	Grizzly	Genetic
12	WHA43M	Unknown	Whaleback	Plumas/Tehama Co.	Ice Cave	GPS Collar



A Diamond pack wolf, Plumas County. Photo courtesy of CDFW.

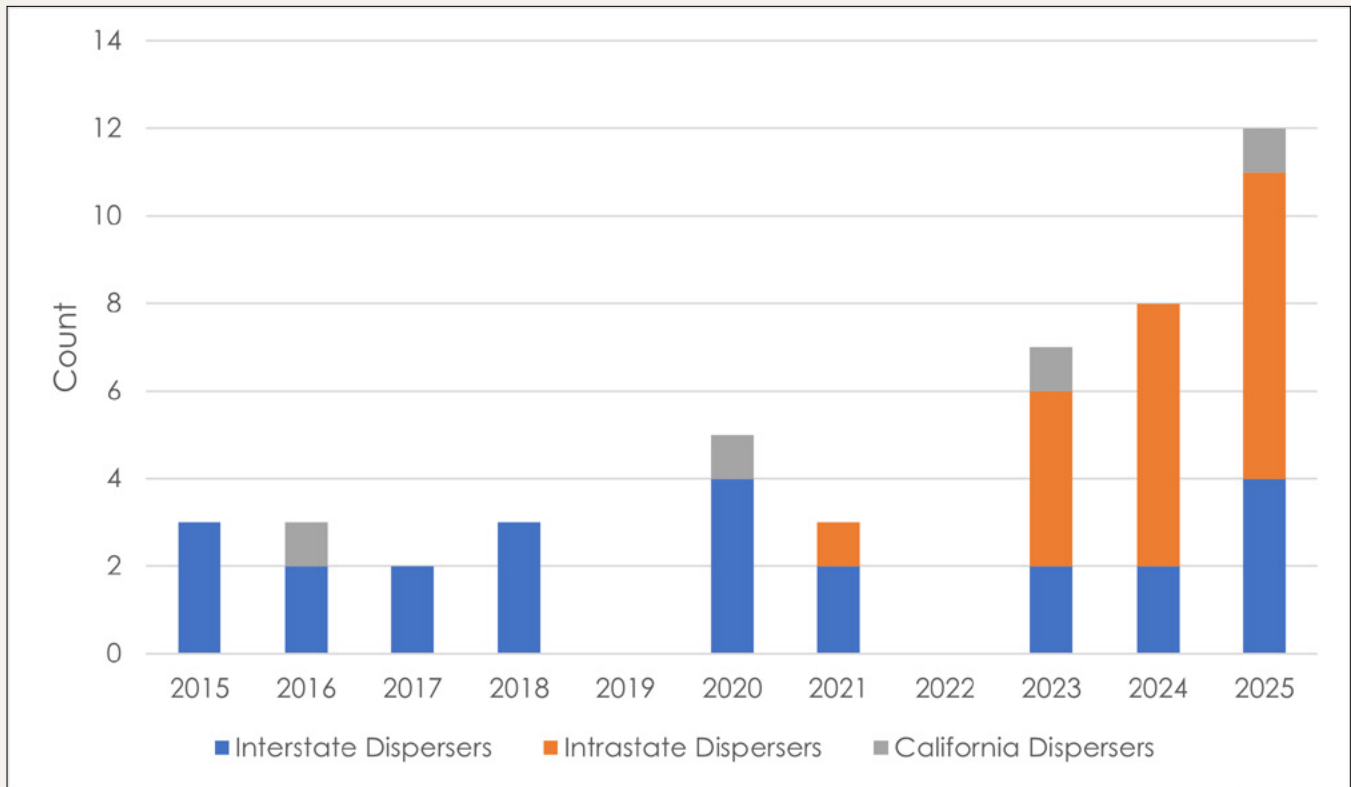


Figure 3. Known wolf dispersal events from 2015-2025. “Interstate Dispersers” are wolves that are born in another state and dispersed to California. “California Dispersers” are wolves born in California that dispersed to another state. “Intrastate Dispersers” are those born in California and dispersing to another location within California.

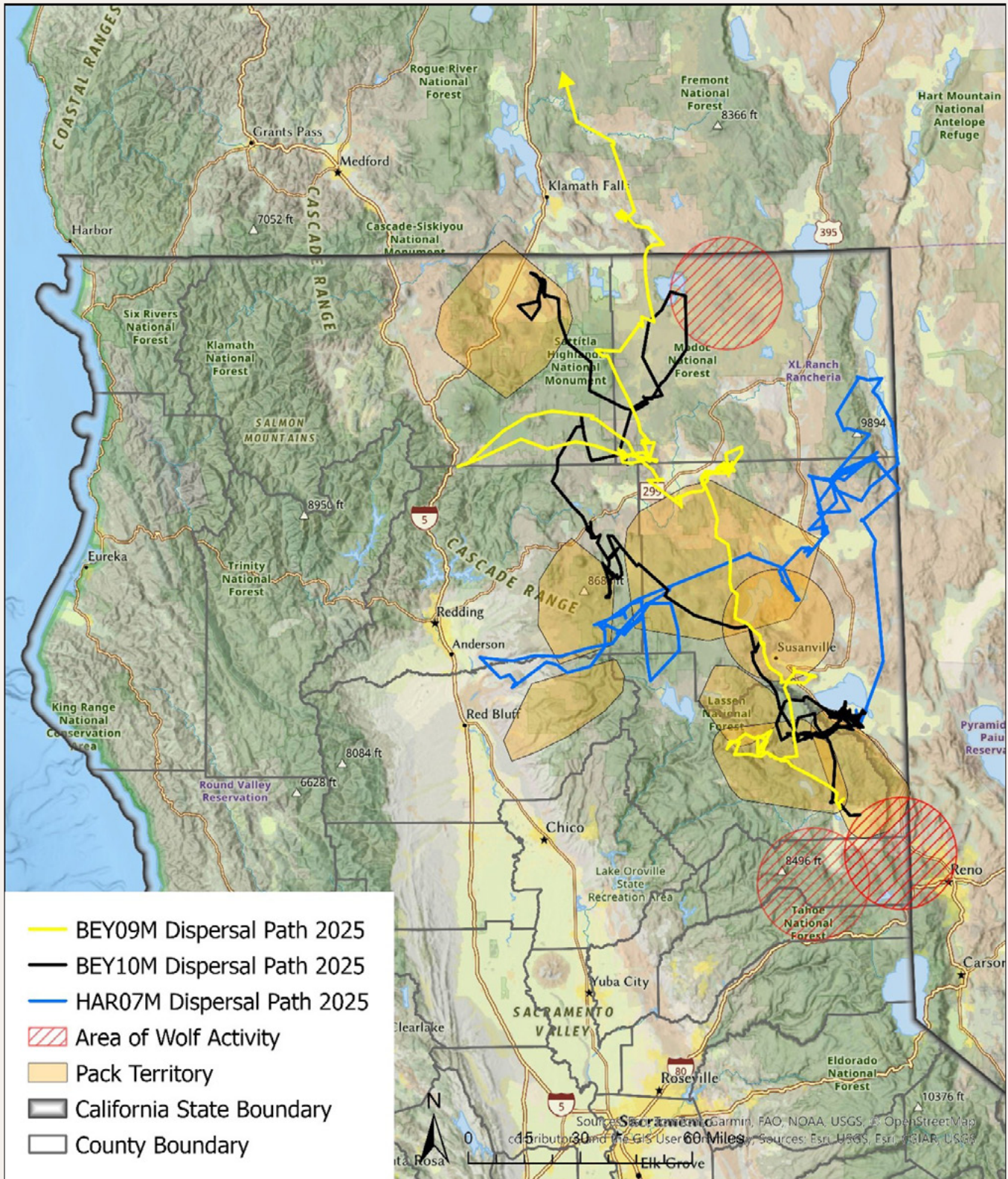


Figure 4. Movement paths for three collared wolves exhibiting dispersal behavior in California in 2025. BEY09M dispersed to Oregon, whereas BEY10M and HAR07M dispersed within California.

REPRODUCTION

Wolves breed once per year, in late winter, and birth their pups in dens during the spring. When a GPS collar is present in a pack, the location of the den (and any subsequent home sites) can be determined and later visited once vacated. The collection of biological samples such as scat and hair at den sites allows for a minimum number of pups to be determined through genetic identification. In 2025, CDFW documented six litters and a minimum of 32 pups born within the state (Table 5).

Table 5. Minimum count of pups born in each pack known to be reproductive in California, 2015 - 2025.

BREEDING PACKS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	No. of Pups Total	No. of Litters
Shasta	5											5	1
Lassen			4	5	4	9*	5	5	4	5	2**	43	10
Whaleback							7	8	8	8	10	41	5
Harvey									2	8	7	17	3
Beyem Seyo									6	5	6	17	3
Yowlumni									6	7		13	2
Ice Cave										2	6	8	2
Grizzly											1**	1	1
Total	5	0	4	5	4	9	12	13	26	35	32	145	27

*In 2020 the Lassen pack had a double litter

**Determined through non-genetic techniques (e.g. field monitoring, camera traps)



Ice Cave pack wolves, Tehama County. Photo courtesy of CDFW.

MORTALITIES

Due to their federally protected status, USFWS leads the investigations of known and potential wolf mortalities in California, although CDFW's Law Enforcement Division (LED) plays a critical collaborative role. Reported wolf mortalities are directed to LED and USFWS. CDFW documented 12 wolf mortalities during 2025 (Table 6 and Figure 5), including four removed by CDFW in response to wolf-livestock conflict (see Wolf-Livestock Conflict section below for more details).

Table 6. Known wolf mortalities in 2025 in California.

DATE	WOLF ID	SEX	AGE CLASS	CAUSE OF DEATH
1/3/2025	YOW06M	Male	Yearling	Under Investigation
1/28/2025	YOW03F	Female	Yearling	Under Investigation
4/27/2025	ICE01F	Female	Yearling	Vehicle Collision
7/2025*	BEY15M	Male	Juvenile	Undetermined
7/2025*	BEY17M	Male	Juvenile	Undetermined
8/2025*	YOW01F	Female	Adult	Undetermined
8/24/2025	BEY10M	Male	Yearling	Under Investigation
9/26/2025	BEY12M	Male	Juvenile	Lethal Removal
10/14/2025	LAS45F	Female	Juvenile	Vehicle Collision
10/15/2025	WHA08M	Male	Adult	Lethal Removal
10/16/2025	LAS23F	Female	Adult	Lethal Removal
10/16/2025	BEY01F	Female	Adult	Lethal Removal

*Estimated date of mortality based on remains



CDFW wildlife forensic scientists extract DNA from wolf scats. Photo courtesy of CDFW.

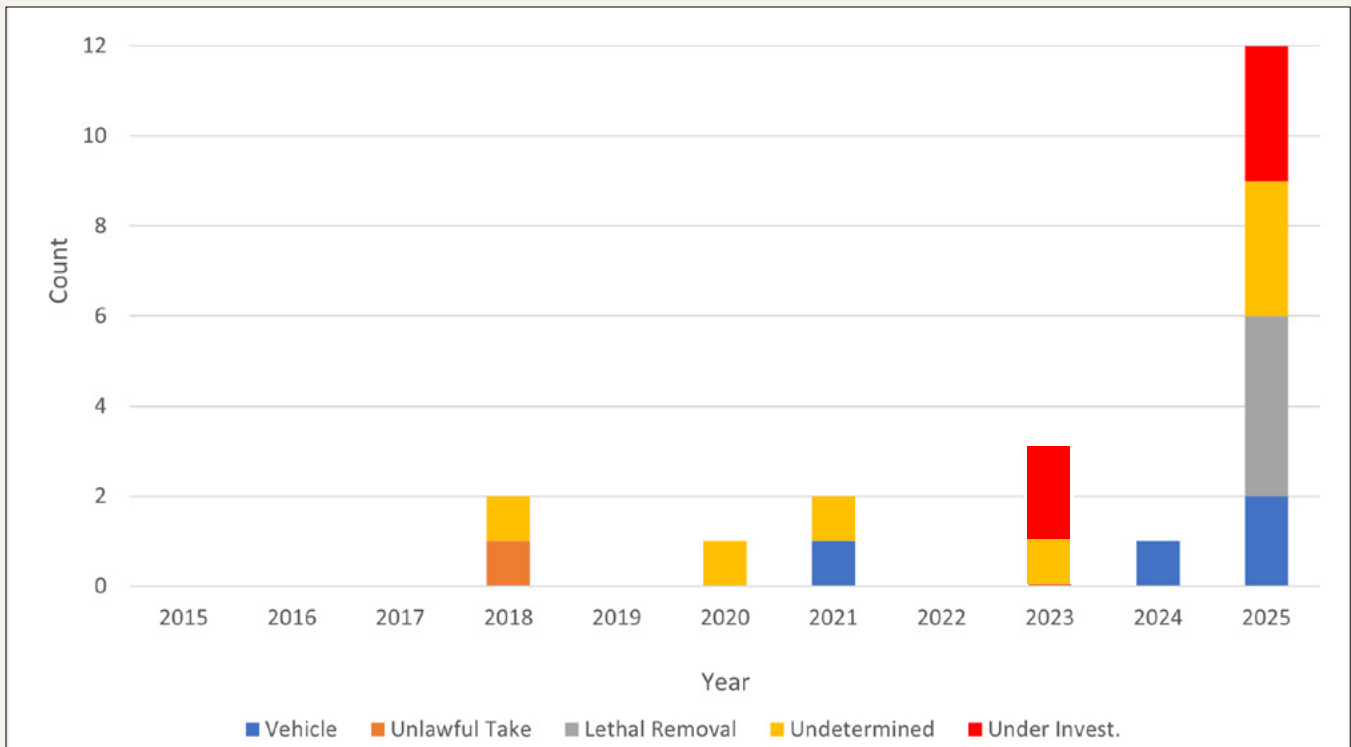


Figure 5. Known gray wolf mortalities from 2015-2025 in California.

DISEASE & RODENTICIDE EXPOSURE MONITORING

The CDFW Wildlife Health Laboratory (WHL) has conducted opportunistic disease and toxicological surveillance as part of gray wolf mortality investigations since 2018. Although wolves are susceptible to several diseases, CDFW has not documented direct disease-related mortalities to date. For animals in sufficient post-mortem condition, a complete post-mortem examination (necropsy) is performed at the WHL, and additional disease testing is conducted at the California Animal Health and Food Safety (CAHFS) Laboratory.

In 2025, six deceased wolves were submitted to the WHL for postmortem examination. Four wolves were in adequate condition for post-mortem evaluation, microscopic examination of tissues, disease and toxicology testing. The other two wolves were too decomposed for complete necropsy.

Three necropsied wolves from the Yowlumni pack had skin infections (mange) of varying severity and chronicity caused by *Sarcoptes sp.* mite infestation. Sarcoptic mange is a highly contagious skin disease caused by the mite *Sarcoptes scabiei*. It is a common widespread disease in domestic and wild mammals that results in alopecia (hair loss), hyperkeratosis (skin thickening) and skin crusting that can lead to secondary bacterial or fungal infections and emaciation. Mange can result in high mortality, especially in pups and can cause localized population declines. This is the first confirmation of sarcoptic mange in California wolves, but mange has been documented in gray wolves in multiple states. In California, sarcoptic mange is commonly reported in coyotes (*Canis latrans*), red foxes (*Vulpes vulpes*), and endangered San Joaquin kit foxes (*Vulpes macrotis*). Additional information about mange can be found in [Part II](#) of the Wolf Plan.

Routine rabies testing of brain tissue of four deceased wolves was negative. Brain tissue from two wolves tested was negative for influenza A virus during routine surveillance for possible avian influenza H5N1 cases in mammals. One wolf incidentally had *Dirofilaria sp.* (heartworms) in the pulmonary artery and two wolves had cestodes (tapeworms) in the small intestine; both parasites are common in wolves, coyotes, red and gray foxes.

Tissue samples from four necropsied wolves tested negative for the presence of eight anticoagulant rodenticides and the neurotoxic rodenticide bromethalin.

As California's wolf population grows and its range expands, continued investigations of mortalities and testing of biological samples will enable CDFW to monitor population health. Diagnostic tools including DNA metabarcoding and PCR testing for pathogens and infections, and serologic surveillance to determine antibody levels against infectious diseases are being used to assess active pathogen shedding and population immunity due to prior infections or exposures (see Research). The WHL also conducts disease surveillance of other wildlife species living in areas inhabited by wolves to monitor disease spillover risks among species throughout the state. Continued toxicology surveillance is part of the WHL's statewide monitoring aimed at reducing risks from non-target rodenticide exposure in wildlife and evaluating the effect of legislation to reduce impacts on non-target wildlife.



A Harvey pack wolf carrying a mallard duck, Lassen County. Photo courtesy of the California Wolf Project, UC Berkeley.



MANAGEMENT AND CONSERVATION

CDFW biologists monitor an anesthetized wolf in Siskiyou County. Photo courtesy of Malia Brytus; California Wolf Project, UC Berkeley.

MANAGEMENT & CONSERVATION

THE THREE PHASES OF WOLF RECOVERY IN CALIFORNIA

The 2016 Wolf Plan denotes three phases of wolf re-establishment and population growth, based on the number of confirmed breeding pairs over time. California transitioned from Phase 1 to Phase 2 in January 2025 after CDFW documented four breeding pairs for two consecutive years. Phase 3 will commence when eight breeding pairs are recorded for two consecutive years.

The Wolf Plan outlines planned or potential conservation actions/options for consideration during Phase 2 and in Phase 3 which include:

- *Conducting a status review to examine California wolf populations, prospects for the future of wolves in California, evaluate appropriate CESA status and report to the Commission.*
- *Injurious harassment will be considered if consistent with State and Federal laws.*
- *An operational framework for lethal control of wolves depredating livestock will be considered if consistent with State and Federal laws.*

As part of its efforts to implement Phase 2, CDFW began working with individual counties on pathways to 1) allow county staff and affected livestock producers to conduct injurious harassment of potentially depredating wolves, and 2) allow increased data sharing of wolf locations to help producers minimize and document wolf-livestock conflict.

As of the end of 2025, there were only three breeding pairs documented in California. However, most other population metrics (continued increase in number of individuals, packs, and occupied range; increased intrastate dispersal; and continued immigration from Oregon) point to continuing recovery. As a result, Phase 2 will continue through 2026.

COMMUNITY ENGAGEMENT & PUBLIC INFORMATION SHARING

CDFW actively engages with California's communities where wolves are present or could soon be present. CDFW proactively communicates about wolf activities through updates and reports on its gray wolf webpage, offers subscription options for updates via email, and regularly engages with livestock producers, partner agencies, elected board officials, non-profit organizations, and academic institutions (colleges, schools, etc.). In 2025, CDFW conducted a total of 34 public engagements collaborating with partner agencies (e.g., US Fish and Wildlife Service, US National Forests, US Department of Agriculture), county representatives, colleges and universities and local communities among others (Table 7). CDFW plans to continue active outreach and is committed to utilizing available capacity and funding to supporting livestock producers, affected communities, and wolf recovery.

Table 7. Summary of agency and community engagement events in 2025.

CATEGORY	DESCRIPTION	2025 COUNT
Interagency	Engagements with state, federal, or tribal partners, e.g. USFWS, USDA, etc.	11
County	Engagements or presentations to county-based groups, e.g., county fish and game commissions	10
Livestock Producer/ Local Communities	Engagements or presentations to local agricultural-focused or community level groups	8
Schools, Universities, and Professional Groups	Presentations at local and state universities, colleges, and schools, as well as professional groups such as the Wildlife Society	4
Statewide	Statewide stakeholder meetings	1

In May 2025, CDFW launched a new mapping tool designed to provide regular location information on GPS-collared wolves in California. The wolf location automated mapping system shows the approximate location of GPS collared wolves within the state with the goal of enabling livestock producers to better understand collared wolf movement near their properties and assist them in mitigating wolf-livestock conflict. The tool operates seven days a week and automatically displays generalized locations using the data uploaded by GPS collars. Certain map cells in the immediate vicinity of den and rendezvous sites are not activated on the map during the reproductive season (typically April through August). The tool was designed and created by Earth Ranger (part of the Ai2 non-profit) for CDFW and is available on CDFW’s website at: wildlife.ca.gov/Conservation/Mammals/Gray-Wolf/Location-Map.

LIVESTOCK DEPREDATIONS

CDFW investigates and reports suspected wolf attacks on livestock with the help of partners (USDA Wildlife Services and county officials). Many field investigations are conducted by those partners. After careful review of field investigation reports and related data, CDFW biologists make a determination for each reported wolf-livestock depredation investigation. Determinations are classified into the following categories: confirmed wolf, probable wolf, possible wolf, non-wolf depredation, non-depredation, or unknown. Definitions of each determination category can be found at: [Considerations for Classification of Reported Wolf Depredation Incidents](#).

In 2025, CDFW and its partners conducted a total of 267 wolf-livestock depredation investigations. Of these, 175 (65.5%) were confirmed or probable wolf depredations, totaling 198 livestock killed or injured by wolves (Table 8). The Beyem Seyo pack accounted for the most confirmed or probable livestock losses (90), followed by the Harvey Pack (38) and the Whaleback pack (25) (Table 9). All confirmed or probable wolf depredations involved cattle except for one sheep loss. The affected livestock producers were eligible to apply for and receive reimbursement of the fair market value of those animals killed, or the cost of care for injured and surviving animals.



Photo courtesy of Paul Roen.

Table 8. Summary of recorded wolf-livestock depredation investigation determinations (by animal loss), and year-end minimum wolf populations for context, 2015 - 2025.

YEAR	YEAR-END MINIMUM WOLF POPULATION	CONFIRMED	PROBABLE	POSSIBLE	NON-WOLF DEPREDATION	NON-DEPREDATION	UNKNOWN
2015	1	0	1	0	0	0	1
2016	2	0	0	0	0	0	0
2017	5	1	1	1	1	4	2
2018	7	5	1	0	0	8	4
2019	7	10	1	1	1	3	5
2020	7	9	0	0	2	7	3
2021	17	13	2	0	1	4	0
2022	18	20	1	0	9	20	4
2023	44	39	6	1	11	13	13
2024	50	61	3	1	2	9	13
2025	55	155	43	8	23	37	54
TOTAL	-	313	59	12	50	105	99

Table 9. Confirmed or probable livestock losses by pack and non-pack wolves, 2015 – 2025.

Packs	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Shasta	1											1
Lassen			2	6	6	8	2	2	5	0	2	33
Whaleback							1	18	39	31	25	114
Beckwourth							1					1
Harvey									1	9	38	48
Beyem Seyo										12	90	102
Yowlumni										4	2	6
Antelope										1		1
Diamond										1	7	8
Ice Cave												0
Ashpan											6	6
Tunnison										5	6	11
Grizzly											6	6
Non-pack					5	1	11	1	0	1	16	35
Total	1	0	2	6	11	9	15	21	45	64	198	372



Diamond pack, Plumas County. Photo courtesy of the California Wolf Project, UC Berkeley.

Except for the Ice Cave pack, all known packs in 2025 have been involved in confirmed or probable livestock depredations at some point in their existence. However, the degree of conflict varies significantly between packs, and is not correlated to the duration of the pack's persistence on the landscape (Figure 6). In general, packs with active collars had higher rates of confirmed conflict, likely due to the utility of collars in locating livestock depredations. However, the Yowlumni pack had relatively little documented conflict in 2025 despite having collared wolves.

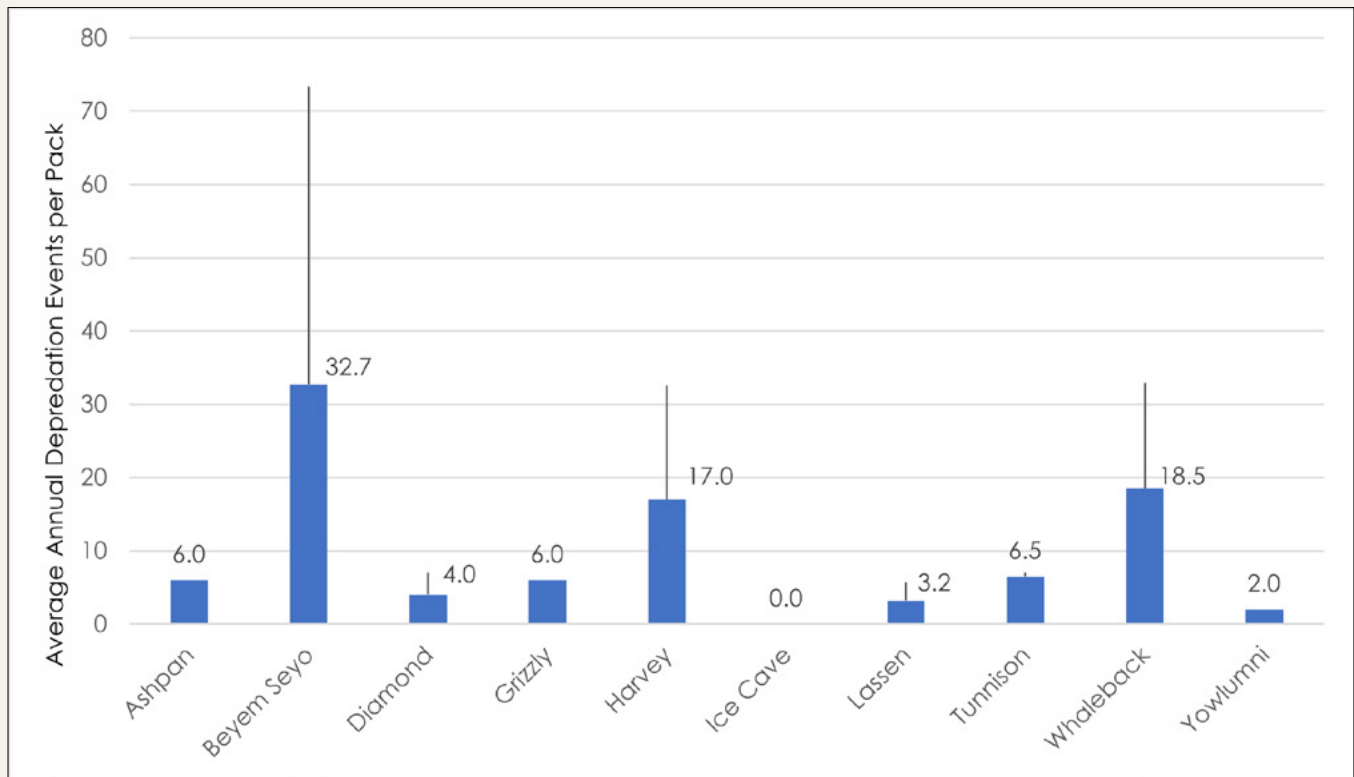


Figure 6. Average annual confirmed depredation events grouped by pack across California (2017–2025). Averages were calculated based on the number of years each pack was documented as active during the period. Error bars represent the population standard deviation (STDEV.P) of annual depredation totals for each pack.

Wolf-livestock conflict has varied by pack by year. For example, the number of confirmed or probable livestock losses attributed to the Whaleback pack has decreased from its peak in 2023, despite an increase in number of active GPS collars in the group (Table 9). Conflict during 2025 was seasonal, with the fewest confirmed and probable depredations in January and in June. In January this may be attributed to more vulnerable native prey and a time when far fewer livestock are on rangelands or calving. June is the peak fawning season for deer and elk (Figure 7).

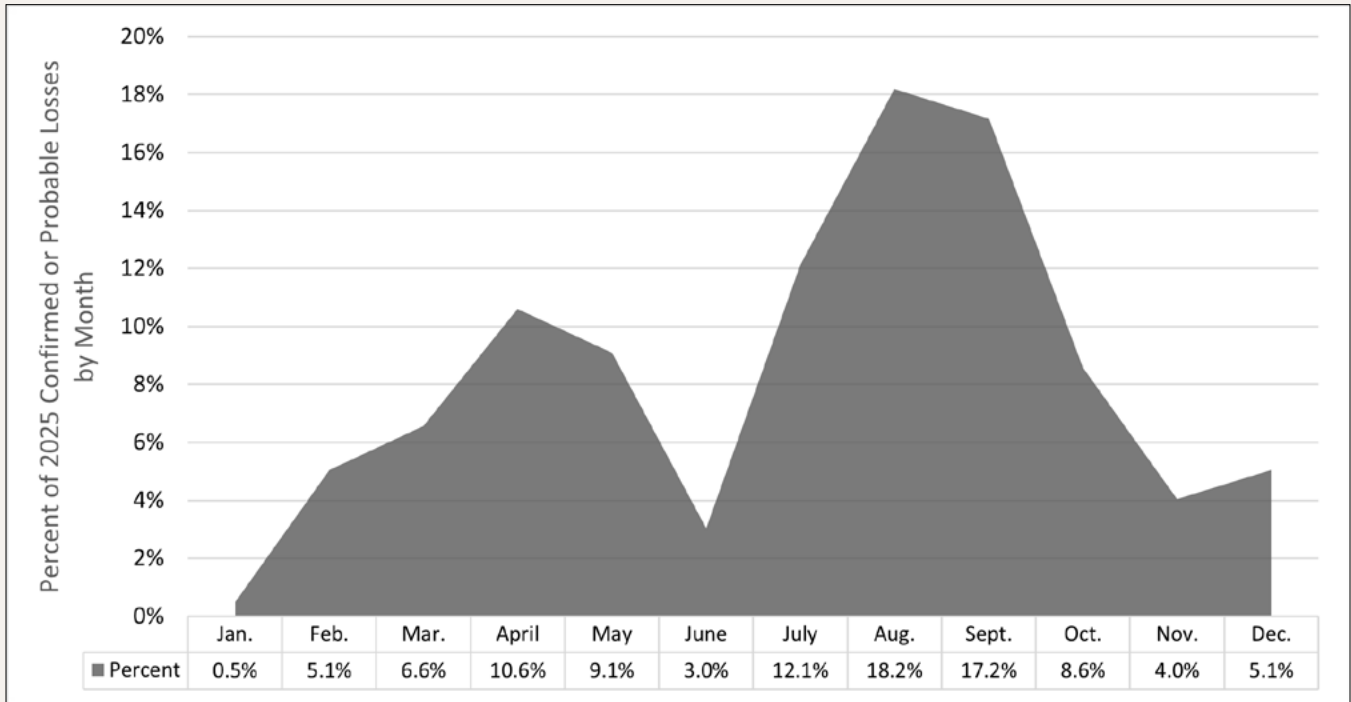


Figure 7. Monthly distribution of confirmed and probable wolf–livestock depredation events in California, expressed as the percent of total annual events by month for 2025. Values represent the proportion of 2025 depredation events occurring in each month.

NON-LETHAL DETERRENTS

Livestock producers utilize a range of strategies to reduce wolf-livestock conflict, and CDFW offers assistance with non-lethal deterrent tools and services. Tools including range riders, radio-activated guard devices, turbo fladry, Foxlights, and drones have been deployed by producers, CDFW staff, USDA Wildlife Services, and county officials.

In addition to the deployment of its own non-lethal deterrents, CDFW staff and other organizations including but not limited to USDA’s Natural Resources Conservation Service and the University of California Cooperative Extension continue to promote and share husbandry recommendations, livestock protection tools, community networking, and other best management practices with producers to reduce livestock conflicts with wolves (e.g., carcass removal, bone pile removal) and other carnivores such as black bears (*Ursus americanus*), mountain lions (*Puma concolor*), and coyotes. While every livestock operation is unique and all tools are not practical or effective for some operations, evidence from California and other western states suggests carefully tailored practices can result in reduced conflict.

Sierra Valley Strike Team & Beyem Seyo Pack Removal

Following an increase in wolf-livestock conflicts in Sierra Valley (Sierra and Plumas counties) involving the Beyem Seyo pack, CDFW established a dedicated Strike Team in June 2025 that provided continuous on-the-ground presence and rapid response capabilities. The team coordinated daily

with local livestock producers and community leaders and maintained 24-hour coverage in and around the valley to deter wolf-livestock interactions. Field personnel conducted active hazing operations using non-lethal projectiles, facilitated carcass removals to reduce attractants, and provided support to livestock producers.

Because of continued depredations, beginning in September CDFW's efforts were complemented by USDA Wildlife Services, which implemented a drone-based hazing program. Diversionary feeding (placement of alternative, non-cattle food sources in areas frequented by wolves outside of the valley) was also implemented as an experimental measure to provide an alternative food source to the pack concurrent with intensive non-lethal deterrence efforts. In late September, lethal removal of the adult wolves was approved to address the unprecedented levels of livestock depredation by the pack.

In October, three adult pack members were lethally removed: LAS23F (breeding female), WHA08M (breeding male), and BEY01F (female, 2023 litter). One juvenile (BEY12M) was also inadvertently killed during these efforts. Concurrently, the remains of two additional juveniles (BEY15M and BEY17M) were located by CDFW biologists. The juveniles had been dead for some time when discovered and their causes of death remain undetermined.

For more information, please see [CDFW's 24 October press release](#).

WOLF-LIVESTOCK COMPENSATION PROGRAM (2024-2025)

CDFW implemented a Wolf-Livestock Compensation Pilot Program (2021-2024) following an initial appropriation of \$3 million from the California state legislature. A wolf compensation working group developed a framework for the program which is outlined in the document [Wolf-Livestock Compensation Pilot Program Framework, May 2023](#).

In 2024, the California state legislature appropriated an additional \$600,000 to CDFW to continue funding the Wolf-Livestock Compensation Program (WLCP). Due to the limited funds available to support the WLCP, CDFW prioritized compensation for direct losses, with all confirmed and probable livestock losses from wolves occurring on or after 1 July 2024 eligible for compensation. A total of \$48,070.50 in compensation was paid by the end of 2024.

In 2025, an additional \$2 million was appropriated by the legislature for the WLCP. During the year, CDFW received 42 WLCP applications for a total of 137 animals. Throughout the year, CDFW paid 38 WLCP applications for a total of \$354,795.47, compensating for 115 livestock losses (Tables 10 & 11). Animals killed by wolves are compensated at their estimated fair market value at time of planned sale. While fair market value compensation does not offset all costs – economic and emotional – associated with wolf depredation, it can help recover some financial impacts. Four applications for 22 animals were still being processed at the end of 2025.

Table 10. Breakdown of Wolf-Livestock Compensation Program’s dispensation of funds by county of applicants from 1 July 2024 through 31 December 2025.

COUNTY	2024 COMPENSATION FOR DIRECT LOSS	2025 COMPENSATION FOR DIRECT LOSS	TOTAL COMPENSATION FOR DIRECT LOSS
Lassen	\$2,030.00	\$86,313.21	\$88,343.21
Modoc	\$0	\$3,420.48	\$3,420.48
Plumas	\$3,350.00	\$88,781.53	\$92,131.53
Shasta	\$0	\$34,985.25	\$34,985.25
Sierra	\$1,799.00	\$73,485.00	\$75,284.00
Siskiyou	\$40,891.50	\$64,620.00	\$105,511.50
Tulare	\$0	\$3,190.00	\$3,190.00
TOTAL	\$48,070.50	\$354,795.47	\$402,865.97

Table 11. Summary of the Wolf-Livestock Compensation Program’s dispensation, number of applicants, and number of lost livestock compensated from 1 July 2024 through 31 December 2025.

COUNTY	APPLICATIONS SUBMITTED	SUM OF ANIMALS ACCOUNTED FOR IN THE APPLICATIONS
Lassen	14	30
Modoc	2	2
Plumas	8	28
Shasta	5	11
Sierra	4	25
Siskiyou	4	18
Tulare	1	1
TOTAL	38	115



RESEARCH

Paws of an anesthetized juvenile wolf from the Ice Cave pack, Tehama County. Photo courtesy of CDFW.

RESEARCH

INTERNAL AND EXTERNAL RESEARCH

Since 2015, CDFW has engaged in internal and external research efforts to increase its understanding of gray wolf ecology, management, and conservation across California. The Gray Wolf Program continues to conduct research independently and in cooperation with other Department programs and external partners.

NEW PROJECTS IN 2025

Sarcoptic Mange Characterization and Detection (Metabarcoding Pilot Study)

Sarcoptic mange has potential for detrimental impacts on wild, endangered canid populations and is a high priority for monitoring in California gray wolves and sympatric canids that may pose spillover risk. In 2025 mange was confirmed in the Yowlumni pack. Profound hair and weight loss was documented during necropsies of three deceased Yowlumni wolves and observed in two additional pack members via trail camera imagery. In 2026, CDFW will use molecular methods to further characterize the mite species that infested those wolves and evaluate a DNA metabarcoding approach for non-invasive detection of mange infection using fecal samples.

Pathogen/Parasite Surveillance

Other disease risks and pathogen exposure in California's wolf packs are currently unknown, and health surveillance has been limited to opportunistic testing of necropsy samples. In 2026 CDFW will conduct serologic and PCR testing to screen for exposure to several canid pathogens and parasites.

ONGOING

CDFW – “Carnivore and Ungulate Abundance and Interactions in Adjacent Non-Occupied Wolf Areas”

CDFW expanded upon already-established UC Berkeley camera trap arrays during late summer 2024 to cover the Lake Tahoe Basin and portions of the El Dorado National Forest (west of the Granite Chief and Desolation Wildernesses, south to and along Carson Pass). This expansion enhances the ability to quantify carnivores (e.g., mountain lions, black bears, coyotes, and bobcat) and deer distribution, relative abundance, activity patterns, and spatio-temporal interactions in areas currently unoccupied by wolves. The results will provide a baseline for future exploration of wolf-carnivore-ungulate dynamics in the region, and improved resolution on patterns of human recreation across the area.

UC Davis - “The Wolf Project”

In 2022, researchers from the University of California, Davis Karen C. Drayer Wildlife Health Center, California Carnivores Program began a wolf project funded by the Wildlife Conservation Network. ‘The Wolf Project’ aims to understand the efficacy of non-invasive monitoring techniques to determine pack size and reproductive status, investigate wolf community ecology, and better understand wolf demographics and foraging ecology. In 2023, CDFW began collaborating with UCD on its camera trapping and acoustic monitoring effort across Northern California. This project will continue through 2026, and more information is available at: [The Wolf Project | Wildlife Health Center / School of Veterinary Medicine](#).

UC Berkeley - “California Wolf Project”

In 2023, California Department of Fish and Wildlife (CDFW) launched a multi-year collaboration with researchers at the University of California, Berkeley (UCB) to address key questions about wolf ecology and management in California. This project examines wolf habitat use and home range size, diet composition, and depredation rates on livestock and wild prey. It also investigates interactions with other large predators, such as mountain lions and black bears, and evaluates impacts on native ungulates, including deer and elk. In addition, the project includes a critical evaluation of CDFW’s wolf–livestock conflict reduction and compensation programs, as well as the impact that wolves have on livestock producers. Findings from these efforts are intended to inform CDFW’s future statewide management of wolves.

The first phase of the project will conclude in June 2026 and will synthesize results across these research areas. The California Wolf Project has provided internal reports to CDFW, delivered presentations to agency staff and partners, and engaged in outreach through local presentations in communities where wolves are present. Additional details on the project and its findings to date are available through the [California Wolf Project website](#).



CDFW biologists deploying nonlethal fladry deterrent fencing, Plumas County. Photo courtesy of CDFW.

APPENDIX 1. Additional details of dispersing wolves documented in 2025

BEY03F From the 2023 Beyem Seyo litter, she dispersed from her natal pack and was detected 350 miles south in Kern County in February 2025. She was later collared in May 2025, within the range of the Yowlumni pack in Tulare County.

BEY08F From the 2024 Beyem Seyo litter, she dispersed from the pack in early 2025. In September 2025 she was detected by genetic analysis at a livestock depredation in Sierra County alongside two other wolves.

BEY09M From the 2024 Beyem Seyo litter, he dispersed from his natal pack in March 2025 traveling north through Lassen, Modoc, and Siskiyou counties. In May 2025, he dispersed into Oregon via Modoc County (Figure 4).

BEY10M From the 2024 Beyem Seyo litter, he departed from the pack in March 2025 traveling north into southern Lassen County, where he remained for over two months. He continued traveling through Plumas, Lassen, Modoc, and Shasta counties throughout the summer of 2025 prior to his death in August (Figure 4). His death is currently under investigation.

DIS05M Dispersed from an unknown location, he was detected by genetic analysis in June 2025 in southern Plumas County. With LAS37F, he formed the Grizzly pack in 2025.

DIS06M Dispersed from an unknown location outside of California, this male was detected in Modoc County in June 2025 through genetic analysis.

DIS07M Dispersed from an unknown location, this wolf has been detected on multiple occasions, including a confirmed depredation in September 2025, in the southwestern portion of Modoc County traveling with an unidentified wolf.

HAR07M From the 2024 Harvey pack litter and collared in 2025, he dispersed started to exhibit dispersal behavior in October while traveling to central Shasta County. By the end of December, he fully dispersed from the pack and was in southern Lassen County (Figure 4).

ICE03M Dispersed from an unknown location, this male was confirmed through genetic analysis to bred with WHA09F in the Ice Cave pack.

LAS30M From the 2021 Lassen pack litter, confirmed through genetic analysis to have dispersed from the Lassen and formed the Diamond pack.

LAS37F From the 2023 Lassen pack litter, confirmed through genetic analysis to have dispersed from the Lassen pack and formed the Grizzly pack with DIS05M in 2025.

WHA43M This male was not previously recorded but was confirmed through genetic analysis to be offspring of the Whaleback pack. He was confirmed through genetic analysis to have dispersed to the Ice Cave pack.