

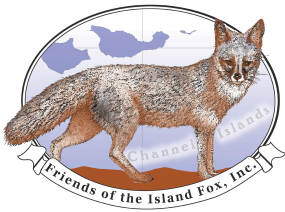
Friends of the Island Fox, Inc.  
 3760 Groves Place, Somis CA 93066  
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## Island Fox Update 2008

The island fox offers a dramatic example of how people can come together and make a positive difference for an endangered species. Ten years ago, island fox populations were plummeting on four of the California Channel Islands due to predation by golden eagles and introduced disease.

Since the height of the crisis in 1998, the Island Fox Working Group has met annually to update population status, discuss problems, consider strategy, and plan for the upcoming year. Friends of the Island Fox supports the Island Fox Working Group and participates in their annual meeting. The following is an update from June 2008 on current island fox status and conservation efforts:

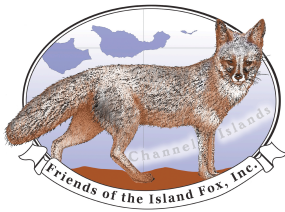
San Miguel Island	island fox population
<p>2007 was a banner year for the San Miguel Island fox (<i>Urocyon littoralis littoralis</i>). Pairs released back into the wild continued to produce high numbers of pups (Coonan, 2008a) and the annual fox survival rate is high, 92% (Coonan &amp; Schwemm, 2008). It was determined that captive breeding, which produced 53 pups since its establishment in 1999, was no longer necessary. The breeding facility was closed in 2007 and all healthy foxes were released into the wild (Coonan, 2008a).</p>	<p><b>Historical estimate:</b></p> <p style="text-align: center;"><b>450</b></p> <p><b>Low point: 15</b></p>
<p><b>Concerns:</b> Genetic inbreeding remains a concern for this population. While eight of the 15 survivors produced pups at the captive breeding facility, this is still a small founder group for a population. The National Park Service will continue to watch for evidence of genetic problems in the recovering population (Coonan, 2008a).</p>	<p><b>Population estimate: 110</b></p> <p><b>Status:</b> Endangered, but recovering</p>
<p><b>Positive Note:</b> The San Miguel Island fox's high rate of survival for both wild and reintroduced individuals, and rapid reproductive success is greater than similar figures reported by other canid reintroduction programs (Coonan &amp; Schwemm, 2008). If the San Miguel population continues to increase at this rate, they may reach a recovery threshold in 2-3 years (Coonan, 2008a). Coonan and Schwemm suggest several reasons for the San Miguel population's recovery success. Predation caused the major impact on this species. Reducing the threat of predation by removing golden eagles from the islands has allowed the San Miguel population to rebound. Because the population was so diminished, biologists were also able to release animals into areas where existing island fox populations were low. Reintroduced individuals faced little competition. The release plan also included monitoring to provide early identification of predation or disease threats to released island foxes so that animals could be recaptured if necessary or further releases could be reevaluated (Coonan &amp; Schwemm, 2008).</p>	



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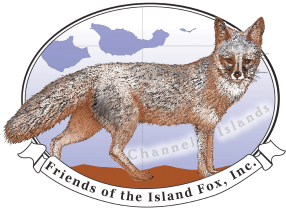
Santa Rosa Island	island fox population
<p>From 2003 to 2007, 62 foxes from the captive breeding program were released back into the wild (Coonan &amp; Schwemm, 2008). In 2007-2008, annual survival of Santa Rosa Island foxes (<i>Urocyon littoralis santarosae</i>) climbed to 90%. This is the first time since releases of captive foxes began in 2003 that survivorship has reached levels necessary for the population to increase. However, while 12 pups were known to be born in 2007, 27 pups were born at the same time on San Miguel. Island fox reproduction on Santa Rosa has not been as robust as on other islands and the population remains small (Coonan, 2008b).</p>	<p><b>Historical estimate:</b></p> <p style="text-align: center;"><b>1,780</b></p> <p><b>Low point: 15</b></p> <p><b>Population estimate: 84</b></p>
<p><b>Concerns:</b> The cause for low reproduction rates has not been determined and may need to become a research priority. While no golden eagles have been seen on Santa Rosa for over a year, eagle predation remains a concern. In 2007, six radio-collared foxes died including one killed by an eagle, but not eaten (Coonan, 2008b).</p>	<p><b>Status:</b> Endangered, but slowly recovering</p>
<p><b>Positive Note:</b> Captive breeding continues for the present. (Coonan, 2008b)</p>	
Santa Cruz Island	island fox population
<p>Between 2000 and 2007, 88 Santa Cruz Island fox (<i>Urocyon littoralis santacruzae</i>) pups were born at the captive breeding facilities. It was determined that captive breeding was no longer necessary and all Santa Cruz Island foxes were returned to the wild by December 2007. Between 2001 and 2007, 69% of island fox mortality on Cruz was due to golden eagle predation. With the removal of the golden eagles, island fox survival has increased from 59% to 89% annually.</p>	<p><b>Historical estimate:</b></p> <p style="text-align: center;"><b>1,465</b></p> <p><b>Low point: 62</b></p> <p><b>Population estimate: up to 400</b></p>
<p><b>Concerns:</b> Of the 31 foxes released in 2007–10 pups and 21 adults–11 of the released adults died, primarily due to predation. These predation events occurred from May 2007 - April 2008 and were widely spaced across the island, suggesting a single transient eagle. Aerial surveys and investigation of historic nest sites did not reveal any golden eagles nesting on Santa Cruz Island (Wolstenholme, 2008).</p>	<p><b>Status:</b> Endangered, but recovering</p>
<p><b>Positive Note:</b> The current plan is to collar and vaccinate 50-60 foxes. The radio collars should quickly reveal mortalities due to golden eagle attacks so action can be taken to search for and remove the responsible bird (Wolstenholme, 2008).</p>	



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Santa Catalina Island	island fox population
<p>In 2007 biologists caught 365 individuals during the autumn sampling. This year 72% of Santa Catalina Island will be sampled for the island fox (<i>Urocyon littoralis catalinae</i>) population. During 2007, the Catalina Island Conservancy (CIC) flew weekly aerial telemetry flights to monitor 57 radio-collared foxes. 21 of these foxes were unvaccinated disease sentinels (for more on sentinel foxes see Island Fox Research 2008 - Island Fox Health pdf). Frequent monitoring led to rapid detection of 14 known mortalities, including four caused by vehicular trauma (King, 2008).</p> <p>The fire of May 10-16, 2007 was the largest fire ever recorded on the island—4,750 acres (de la Rosa et al., 2008). Because the fire occurred in the spring, while young pups were still in family dens, it is believed some island fox offspring perished in the fire. However, few adults appear to have been affected. Adult foxes in the burned habitat did not lose weight in the following year despite reduced vegetation and drought. The one young female that was injured in the fire and released has thrived over the past year and produced pups (King, Duncan &amp; Garcelon, 2008).</p>	<p><b>Historical estimate:</b></p> <p style="text-align: center;"><b>1,342</b></p> <p><b>Low point: 103</b></p> <p><b>Population estimate: 572</b></p> <p><b>Status:</b> Endangered, but recovering</p>
<p><b>Concerns:</b> Current threats to foxes on Catalina Island include vehicles, feral cats, domestic dogs, humans, ear tumors and wild animals transported from the mainland. The city of Avalon is visited by over a million people annually. The highest densities of foxes were reported near human camp areas and people feeding foxes has become a problem. In the past year, there were three known incidences of wild raccoons stowing away on private boats and being transported to Catalina Island. The current island-wide estimate of feral cats is over 700. The link between feline ear mites and a growing threat to the island fox, cancer (ceruminous gland carcinoma), is still being studied. But the combination of people, pets and wild animals from the mainland poses a constant threat for the introduction of disease on this island.</p>	
<p><b>Positive Note:</b> 80% of the Catalina population has been vaccinated for canine distemper (King, 2008). This population is monitored with telemetry and GPS tracking, and annual island-wide trapping. Traffic signs and speed notification devices are in place at sections of road frequented by island foxes. Research and investigation into the cause and prevalence of ear tumors is currently underway (King, Duncan &amp; Garcelon, 2008). For more on ceruminous gland carcinoma see Island Fox Research 2008 - Island Fox Health pdf. A feral cat task force has been created to address the issues related to cats (King, 2008).</p>	

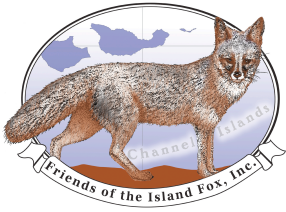


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San Clemente Island	island fox population
<p>Studies are currently ongoing on San Clemente Island to establish more accurate estimates of the island fox (<i>Urocyon littoralis clemensiae</i>) population. Previous estimates may have been overstated. The current annual survival rate is very high, 91% (Andelt, 2008).</p>	<p><b>Historical estimate:</b></p> <p style="text-align: center;"><b>1,000</b></p>
<p><b>Concerns:</b> Annually, an average of 33 island foxes were hit and killed by vehicles on San Clemente between 2003 and 2007. Biologists are investigating why foxes are using these areas of road—is it the easy access or could it be because there are fewer feral cats near roads, or is the reason some unknown factor? (Andelt, 2008).</p>	<p><b>Population estimate</b>          (for Northwestern 2/3 of the island): <b>386</b></p>
<p><b>Positive Note:</b> There is no current disease or predation threat to this population.</p>	<p><b>Status:</b> Stable, but vulnerable</p>

San Nicolas Island	island fox population
<p>Monitoring island foxes (<i>Urocyon littoralis dickeyi</i>) on San Nicolas Island began in 2000 and the population appears to be growing. There is a high annual survival rate and no evidence of disease. As a preventative measure, 49 island foxes were vaccinated in 2007-08 against rabies and distemper (Smith, 2008).</p>	<p><b>Historical estimate:</b></p> <p style="text-align: center;"><b>520</b></p>
<p><b>Concerns:</b> The greatest threat to island foxes on San Nicolas is vehicular trauma. In 2006, 24 foxes died due to car strikes. The number dropped in 2007 to 19, however, in 2008 there were 17 mortalities in the first six months (Smith, 2008). Road signs to alert drivers and public education efforts will continue in an attempt to reduce the number of island foxes hit by cars.</p> <p>The high density of island foxes on San Nicolas, puts the animals at greater risk if a disease were to be introduced. Because the foxes live closer together, there is a greater probability of disease being passed from fox to fox (Ferrara, Hudgens &amp; Garcelon, 2008).</p>	<p><b>Population estimate:</b> <b>725</b></p> <p><b>Status:</b> Stable, but vulnerable</p>
<p><b>Positive Note:</b> San Nicolas Island is currently testing an automated, remote telemetry tracking system which allows a single operator to monitor signals from 64 individual foxes. The goal is to have 100 radio-collared island foxes as a representative monitoring population. Using the automated monitoring, biologists have been developing a baseline for normal mortality ratios. The baseline provides managers with a measurement by which they can judge abnormal mortality rates and establish triggers for specific management responses like emergency necropsy, immediate trapping and quarantine of healthy foxes (Smith, 2008).</p>	



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