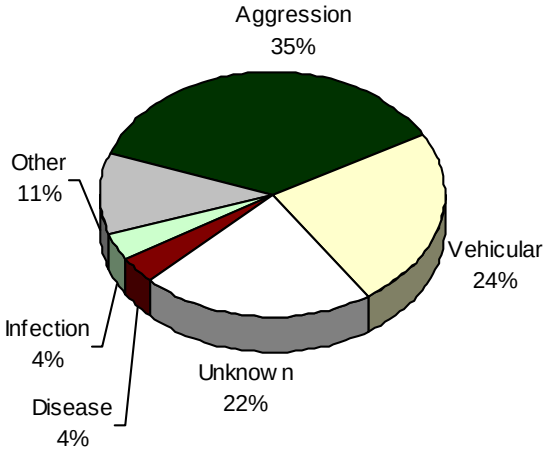
FLORIDA PANTHERS AND THE ROAD-KILL PROBLEM
A Brief Synopsis

November 2000

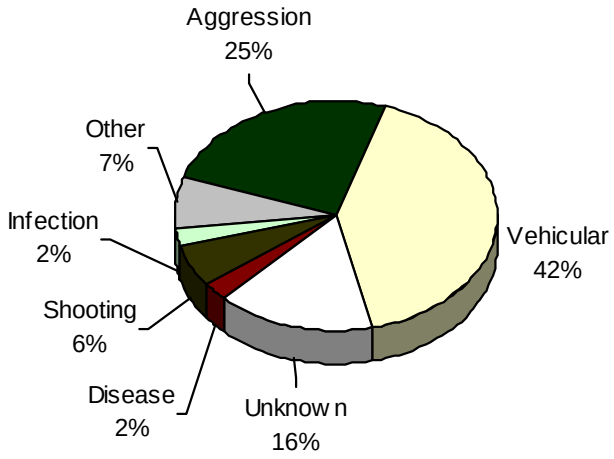
Road kills are the second leading cause of death to radio-collared Florida panthers (Fig. 1). Intraspecific aggression (panthers killing other panthers) ranks number one. However, when considering all panthers (collared and uncollared) it appears that road kills are the number one cause of death (Fig. 2).

This may be a bit confusing at first because the leading causes of death, road kills and intraspecific aggression, between the two samples flip flops. But this is due to something known as *sampling bias*. A sampling bias occurs when one portion of a sample is overly represented. For example, an uncollared panther is easily found next to a roadside thus inflating the number (sample) of road kills found. Conversely, uncollared panthers that succumb to intraspecific aggression deep in the woods are never found and therefore cannot be counted in the sample. This is how a bias is created when "all panthers" (collared and uncollared) are taken into consideration. In order to analyze the data scientifically we must only count known individuals (i.e., collared panthers). Without the artificial bias in place we get a truer picture of what the leading cause of mortality is.

Causes of Mortality for Radiocollared Florida Panthers
(*n* = 55) 1981 - 2000

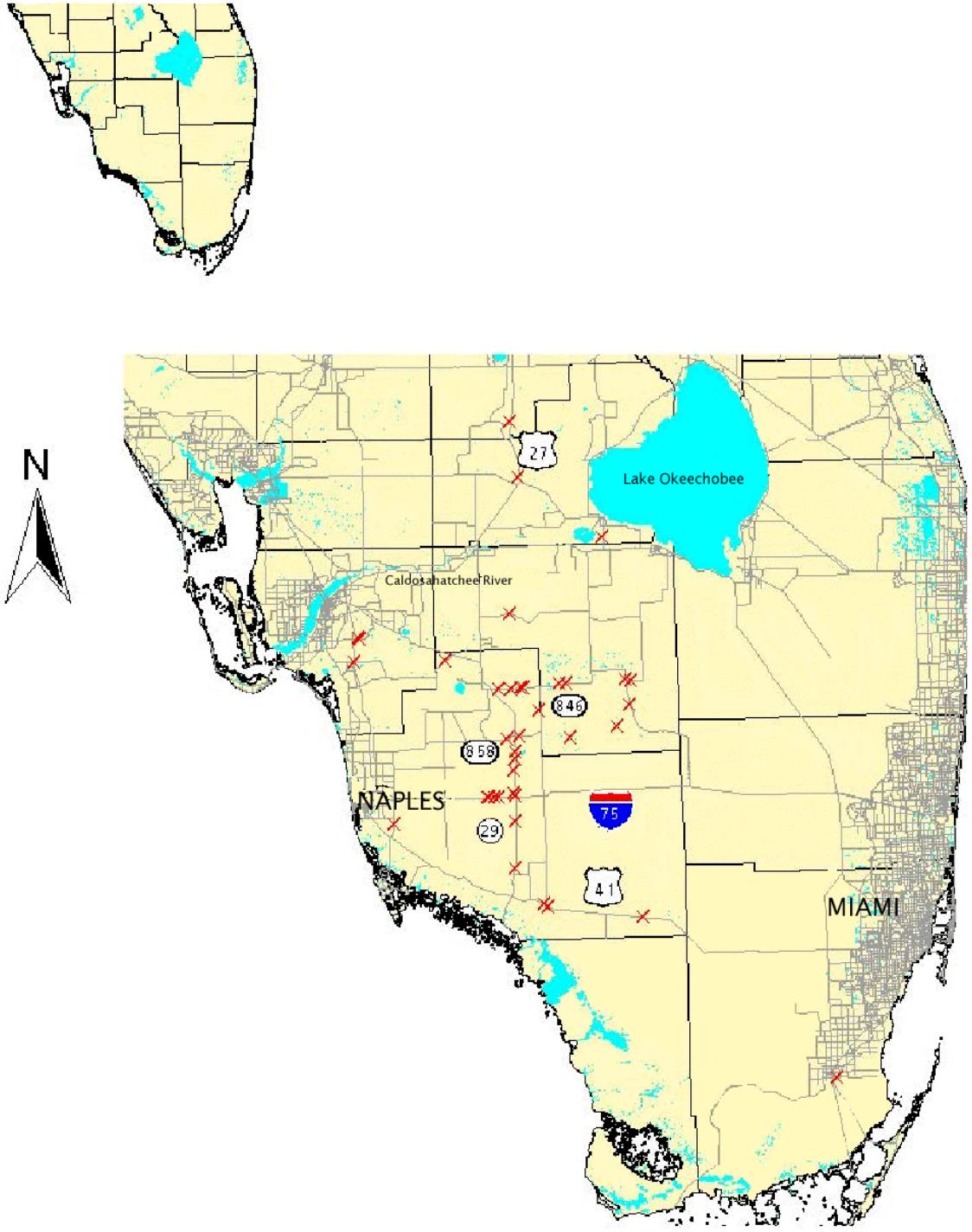


Causes of Mortality for Radiocollared and Documented Uncollared Florida Panthers (*n* = 82) 1981 - 2000



Historically two roads, Alligator Alley (State Road (SR) 84) and SR 29, had the highest concentration of road-kill mortality. The danger to panthers was remedied on Alligator Alley when Interstate 75 (I-75) was extended in its place. During the conversion of the former 2-lane highway with a divided 4-lane Interstate, *wildlife underpasses* were installed. These were bridge-type structures which allowed panthers, as well as all other wildlife, to pass below the flow of traffic out of harms way. Similar structures have been installed on SR 29 where panthers were frequently hit. The underpasses have been extremely successful. Florida panthers continually utilize the underpasses and since their completion there have not been any road kills in the protected areas.

Florida panthers continue to get killed on other roads throughout their range (Fig. 3). Since the elimination of road kills in a protected core area along the I-75/ SR29 corridors through the installation of underpasses, there has been a shift in the locations where panthers are getting hit. Most of the deaths have been distributed among several different roads. But County Road (CR) 846 has recently surpassed the former Alligator Alley in the number of panther deaths which have occurred on it. Half of the road kills this year have been on this roadway, two within a mile of each other. With an increase in road-kill numbers a pattern has developed and a few "hot spots" have now been identified.


N
Lake Okeechobee
Caloosahatchee River
NAPLES
MIAMI
27
846
858
29
75
41
10 0 10 20 Kilometers

The number of road kills per year has remained fairly constant, about two to three per year. Some years there have been none. So far this year, however, there have been six; four males and two females. Only two, one of each sex, were collared. There's no need for alarm just yet since the cause of the increase is unclear. Several factors are likely involved. Although more dead panthers may not sound like a good thing there may be a positive twist. It could be that the population has increased to the point where more panthers are crossing roads. This, unfortunately, is leading to more road kills but only because there are more panthers out there. One negative scenario may be that loss and/or degradation of habitat has forced them to explore new territories crossing roads in the process. There's also the possibility that this years increase is just a fluke. Right now it's too early to tell. Rarely is an outcome the result of one lone factor. This is especially true when endangered species are involved. The increase in road kills this year is interesting to note. However, all the data are not in yet. We'll have to wait and see what it all means for the Florida panther.