# Northern flying squirrel, Prince of Wales

Class: Mammalia
Order: Rodentia

*Glaucomys sabrinus griseifrons*

Note: This assessment refers to this subspecies only. A species level report, which refers to all associated subspecies, is also available.

**Review Status:** Peer-reviewed **Version Date:** 10 December 2018

**Conservation Status**

| *NatureServe:* | *Agency:* | | |
|---|---|---|---|
| G Rank: G5T4 | ADF&G: Species of Greatest Conservation Need | IUCN: | Audubon AK: |
| S Rank: S4 | USFWS: | BLM: | |

**Final Rank**

Conservation category: **IV. Orange**

unknown status and high biological vulnerability and action need

| Category | Range | Score |
|---|---|---|
| Status | -20 to 20 | 0 |
| Biological | -50 to 50 | -1 |
| Action | -40 to 40 | 20 |

**Higher numerical scores denote greater concern**

**Status** - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing). **Score**

*Population Trend in Alaska (-10 to 10)* 0

Unknown.

*Distribution Trend in Alaska (-10 to 10)* 0

Unknown. In its 90-day finding following a petition for listing, the USFWS (2012) concluded, "There is no evidence to support or refute the possibility that the historical range of the POW flying squirrel has changed since colonization and subspeciation occurred."

Status Total: 0

**Biological** - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable). **Score**

*Population Size in Alaska (-10 to 10)* -6

Unknown, but suspected large. Mark-recapture studies in two different habitat types estimated spring densities ranging from 1.0 to 2.0 individuals/hectare (Smith and Nichols 2003). Given range size, we assume that there are likely >10,000 individuals in the state.

*Range Size in Alaska (-10 to 10)* 4

Found on islands of the Alexander Archipelago, including Prince of Wales, Dall, Suemez, and El

Capitan (Bidlack and Cook 2001). Estimated range size is ~8,200 sq. km, calculated in GIS and based on range map from ACCS (2017a).

*Population Concentration in Alaska (-10 to 10)* 2

Known from fewer than 25 islands (Bidlack and Cook 2001).

*Reproductive Potential in Alaska*

Age of First Reproduction (-5 to 5) -5

Less than 2 years. In the U.S. Pacific Northwest, females 22 months or older were typically reproductively active (Villa et al. 1999). A study on Prince of Wales island reported a maximum lifespan of 30 months, during which time reproduction had already occurred (Smith and Nichols 2003).

Number of Young (-5 to 5) 2

No subspecies specific information, but likely the same as species. In northern Washington, mean litter size was 2.8 and ranged from 1 to 4 (Villa et al. 1999). Females have one litter per year (Villa et al. 1999).

*Ecological Specialization in Alaska*

Dietary (-5 to 5) 1

In Alaska and the northwest U.S., diet consists mainly of epigeous fungi, hypogeous fungi (truffles), lichens, and conifer seeds (Maser et al. 1985; Maser et al. 1986; Pyare et al. 2002; Smith 2007; Flaherty et al. 2010). Within this niche, they are opportunistic, consuming several genera of fungi and shifting their diet with availability (Maser et al. 1985; Pyare et al. 2002; Lehmkuhl et al. 2004; Flaherty et al. 2010).

Habitat (-5 to 5) 1

Inhabits a variety of forest types including temperate spruce-hemlock rainforests, open canopy wetlands, and second-growth forests (Smith and Nichols 2003; Smith et al. 2004; Pyare et al. 2010). Important habitat features include large trees, snags, and an ericaceous understory, but old-growth forests are not a requirement for this subspecies (Smith et al. 2004; Smith et al. 2005b; Pyare et al. 2010). Prefers to den in tree cavities of snags or live trees; these features do not appear limited in Southeast Alaska (Mowrey and Zasada 1984; Bakker and Hastings 2002; Pyare et al. 2010).

Biological Total: -1

**Action** - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs). **Score**

*Management Plans and Regulations in Alaska (-10 to 10)* 10

Squirrels, including flying squirrels, can be hunted and trapped in Alaska with no closed season or bag limits (ADFG 2020a; ADFG 2020b).

*Knowledge of Distribution and Habitat in Alaska (-10 to 10)* -10

Distribution and habitat associations have been well studied in Southeast Alaska (e.g. Bakker and Hastings 2002; Smith and Nichols 2003; Smith et al. 2004; Smith et al. 2005b; Pyare et al. 2010).

*Knowledge of Population Trends in Alaska (-10 to 10)* 10

Not currently monitored.

*Knowledge of Factors Limiting Populations in Alaska (-10 to 10)* 10

Factors that limit this population are not well understood. Several factors have been proposed, including predation, interspecific competition, and habitat loss and fragmentation. Several lines of evidence suggest that the Prince of Wales flying squirrel is not an old-growth obligate (reviewed in USFWS 2012; Trapp et al. 2019); thus, logging and associated habitat loss and modification are not thought to currently limit populations. Similarly, although flying squirrels may compete with red squirrel for resources, red squirrels are absent from Prince of Wales Island, which represents >70% of the POW flying squirrel's range (USFWS 2012). Some authors have suggested that wetland forests may act as population sinks, but existing data suggest that percentage of reproductive females and percentage of juveniles are similar in old-growth and wetland forest habitats (Smith and Nichols 2003; USFWS 2012). Winter survival was also similar between both habitat types (Smith and Nichols 2003).

It is unclear how climate change will affect this subspecies. While models predict that the amount of habitat will increase by the end of this century (Marcot et al. 2015; Murray et al. 2017), climate change could negatively impact the availability of truffles if drought years become more common (K. Mohatt, USFS, pers. comm.).

Action Total: 20

**Supplemental Information** - variables do not receive numerical scores. Instead, they are used to sort taxa to answer specific biological or management questions.

| | |
|---|---|
| **Harvest:** | Not substantial |
| **Seasonal Occurrence:** | Year-round |
| **Taxonomic Significance:** | Subspecies |
| **% Global Range in Alaska:** | >10% |
| **% Global Population in Alaska:** | Endemic |
| **Peripheral:** | No |

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Alaska Center for Conservation Science
Alaska Natural Heritage Program
University of Alaska Anchorage
Anchorage, AK