

# Report on Paradise Meadows Canada Jay Study

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Dan Strickland

## Reason for Study

When I was introduced to Paradise Meadows by two friends in October 2010 we were swarmed by an obviously cohesive social group of at least 7 individual Canada Jays (something that I had never seen before but which later observations have shown are entirely normal in this race). This and the much bolder, more "in-your-face" personality of the Vancouver Island birds suggested that there might well be other differences in behaviour and social organization between the local race (*Perisoreus canadensis obscurus/griseus*) and the more widespread boreal/eastern race (*P. c. canadensis*) that I have studied in Ontario and Quebec. Such differences might include any or all of:

- (i) The western race might not have the same partial juvenile dispersal system we see in the boreal/ eastern race in which, at about 6 weeks post-fledging, the dominant juvenile effectively expels its sibling brood-members from the natal territory, resulting in just one extra bird on the territory. (Indeed, it is hard to see how the big western social groups would come into existence if the western race had such a dispersal system).
- (ii) It also seemed possible that nonbreeding individuals in the big western groups might help to feed nestlings—not just fledglings as is sometimes seen in the boreal/eastern race when there is an extra bird on the territory.
- (iii) Given the large numbers of birds in the western social groups it also seemed possible that there might be more than one breeding pair on at least some individual territories.

If any of these conjectures turned out to be true, it would, along with the different appearance and genetics of the western race, support the suggestion that the western birds are worthy of being restored to their former status as a distinct species, *Perisoreus obscurus*, separate from *Perisoreus canadensis*. The two were "lumped" in 1944, not on the basis of any stated evidence, but on the say-so of a well-regarded authority of the day.

## General Methods and Personnel

From mid-September to mid-October 2016, with the help of Bryan Gates, I banded 92 jays along the Paradise Meadows/Helen Mackenzie loop trails in Strathcona Provincial Park. Each bird was given a unique combination of two coloured bands and one standard numbered metal band to permit later recognition of individuals without recapturing them. Public participation was encouraged by the circulation of a digital poster explaining the purpose of the study and the colour banding system and two talks given to Comox Valley Nature (and two more this year to the Victoria Natural History Society and the Strathcona Wilderness Institute).

The second field-work session ran from March 1 to June 29 and concentrated on finding and monitoring the nests of previously colour-banded birds. In March and April I benefitted from the able assistance of Blair Dudeck whose salary was kindly covered by my principal jay collaborator, Dr. Ryan Norris of the University of Guelph. Subsequent volunteer assistance in nest watches, banding nestlings and miscellaneous key observations was gratefully received from, among others, Lena Ware, Cayla Naumann, Samantha Hammond, Heather Holmes, Rob Adams, and Eric Demers of Vancouver Island University.

## Results of the March 1 to June 29 Field Season

- (i) The habitat preferred by our study population was old-growth forest dominated by Mountain Hemlock, with lesser amounts of Yellow Cedar, Western White Pine, and Amabilis Fir. Spruce is notably absent (even though it is believed to be a critical component of Canada Jay habitat elsewhere). Copious strands of arboreal lichens (*Alectoria* spp.?) are conspicuous and favoured as storage/foraging locations. The jays often hang upside down, tit-like, from the lichens (behaviour that is much less obvious in *P.c. canadensis*).
- (ii) Blair Dudeck and I found 8 nests (including 2 renests) of 6 pairs, 7 in Mountain Hemlocks, 1 in a fir. The *Birds of British Columbia* (Campbell et al.) states that only 19 nests have ever been documented in British Columbia so our nests constitute a 42% increase in the provincial total (and no doubt a much higher increase in the number of known nests of the coastal/Vancouver Island race, *P. c. obscurus/griseus*).

(iii) Of the 6 initial nests 2 were too high for practical observation or opportunity to band the young. Two of the remaining nests failed but were succeeded by renests (although one of these failed as well). No time yet for accurate totals, but as a guess, each closely observed pair was observed for 50+ hours in the incubation period and 75+ hours in the nestling period. There was no evidence that incubating females were fed on the nest by any bird other than its apparent mate and no indication that the nestlings were fed by any birds other than its parents. Nor, did I see fledglings fed by apparent nonbreeders in the same social group even though this has been documented several times in the supposedly less social eastern/boreal race of Canada Jays.

(iv) The three closely observed pairs fledged a total of 10 young (all banded as nestlings: two broods of 3, one of 4). However, I was also unexpectedly successful in trapping free-flying juveniles, something I never succeeded in doing in Ontario or Quebec. All told, I captured 22 such birds, including 8 of the 10 already banded, known-age juveniles from the three closely observed nests, but also 14 until-then unbanded juveniles representing all of 5 other fledgling broods and one from a ninth brood (of three). Thus, although I individually marked the nestlings on only 3 territories I ended up with all the young marked on 8 territories.

(v) Most significant of all, one of the unbanded broods provided evidence for the first known case of plural breeding in the Canada Jay. That is, there were two nesting pairs from the same social group nesting on the same territory. One pair, the one we were watching closely, failed to produce any nestlings in two attempts but the other nest which we did not know about produced a now banded fledgling brood that is part of the reconstituted social group on the affected territory. This social system recalls that of the Mexican Jay and some other Central American jay species.

(vi) The west coast race of Canada Jay is remarkable for its gradual change in colour from distinctly grey in fresh plumage to a much browner hue by the time the feathers are a year old. The annual moult occurs in June so a special effort was made this past month to collect an old and an incoming tail feather from as many individual adults as possible. Samples from 88 birds will be sent to Dr. Stéphanie Doucet of the University of Windsor to quantify this unusual same-feathers colour change and begin exploring the factors responsible.

### **Future Work**

Since the Paradise Meadows jays nested a full month later than those in Ontario, Quebec, and even Alaska, it is too early to say if the partial juvenile dispersal that occurs in eastern/boreal jays some 6 weeks after fledgling will also occur in this race. Observations over the coming weeks by interested volunteers may shed light on this question and I will be back for a month this coming September/October to monitor the population and determine if a partial dispersal has occurred.



Blair pointing to first nest, March 18, 2017



The first Rossiter's Rise Nest



The three Trailhead hatchlings (one egg failed to hatch). Photo by Blair Dudeck



Volunteer Lena Ware helping to band the Trailhead nestlings



Just minutes out of the nest





The Trailhead male feeding one of his fledglings



Five weeks post-fledging