

Age determination in Svalbard ptarmigan *Lagopus mutus hyperboreus**

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In autumn approximately 10% of young Svalbard ptarmigan lack the typical pigment on primary 9 normally used to distinguish them from adult birds. This condition created the potential for a 10% error in ageing young birds. A slight modification of the standard ageing technique was tested here and resulted in an accuracy of 99%

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Bergerud et al. (1963) showed that adult Willow Ptarmigan *Lagopus lagopus* age 15 months or older could be distinguished from younger birds with accuracies of 96-99% by comparing the amount of dark pigment on primaries 8 and 9. Adults had the same amount or less pigment on P9 than P8 whereas younger birds had more on P9 than P8. Weeden & Watson (1967) tested the technique on samples of Rock Ptarmigan *Lagopus mutus* from Alaska and Scotland and arrived at the same level of accuracy. S. Unander (pers. comm.), however, checked the pigmentation on 59 ringed young of Svalbard Ptarmigan less than one year old and found that six (10%) lacked the typical juvenile condition of more pigmentation on P9 than P8. Therefore these birds could easily have been incorrectly aged as adults.

In 1983 we shot a sample of 135 ptarmigan near Ny-Ålesund, West Spitsbergen, between 1 and 25 September. Young of the year were 1.5-2.5 months old and at this age have incompletely ossified skulls which are noticeably softer than those of adult birds. We were therefore able to distinguish young birds from adults by using a skull softness test which consisted of squeezing each skull between the thumb and forefinger. All soft-skulled birds were classified as young of the year and all hard-skulled birds as adults. In addition, most young still had remnants of juvenile plumage.

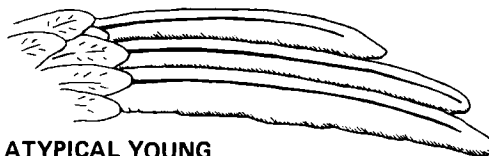
Among the sample of 135 birds were 24 adults and 111 young. All adults showed the typical adult pigmentation (Fig. 1). Among the 111 young

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were ten (9%) which did not have more pigment on P9 than P8. On closer inspection of these ten birds, however, it was found that the pigment on



TYPICAL YOUNG



ATYPICAL YOUNG



ADULT

Fig. 1. The extent of dark pigmentation on primaries 8 and 9 in typical young, atypical young and adults of Svalbard Ptarmigan. Typical young have noticeably more pigmentation on P9 than P8. In atypical young the pigmentation is lacking on the feather barbs of P9 but extends further up the shaft towards the tip of P9 than P8. In adults, the shaft pigmentation on P8 and P9 extends equally as far up along the tips. Adults and atypical young are easily confused.

the feather shaft proper extended noticeably further towards the tip of P9 and P8. This was not the case in adult birds. This detail is easily overlooked as it is the pigment on the feather barbs that is normally used as the basis for comparison. Thus all ten of these atypical young could, in fact, be distinguished from adults when this detail was considered.

We tested the accuracy of ageing Svalbard Ptarmigan using the standard pigmentation method, but with the inclusion of this slight modification. Four observers previously accustomed to ageing ptarmigan were first taught the modification. Each was then presented with a sample of 61 wings of known age (29 adults, 32 young) and asked to age them. Accuracy was 99% indicating that employment of this slight modification when ageing Svalbard Ptarmigan should insure accu-

acies comparable to those experienced in other *Lagopus* sp.

Some difficulty was encountered in using the method on birds shot during late spring as primary tips were often considerably frayed.

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References

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