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193 Lesser Black-backed Gulls / Kleine Mantelmeeuwen *Larus fuscus* and European Herring Gulls / Zilvermeeuwen *L argentatus*, Wijster, Drenthe, Netherlands, 15 July 2000 *(Theo Bakker)*. Underwing typical for many *intermedius*-type birds. **194** Lesser Black-backed Gull / Kleine Mantelmeeuw *Larus fuscus*, second calendar-year, Wijster, Drenthe, Netherlands, 15 July 2000 *(Theo Bakker)*. *Graellsii*-type. Note primary moult advanced to p7; all coverts moulted but many with rather dark cold brown colour and dark patterning typical for feathers moulted during summer; single visible secondary and outer tail-feathers still juvenile. **195** Lesser Black-backed Gull / Kleine Mantelmeeuw *Larus fuscus*, second calendar-year, Wijster, Drenthe, Netherlands, 5 August 2001 *(Rik Winters)*. Size, structure and general plumage coloration suggestive of nominate *fuscus* but moult more similar to western taxa. **196** Lesser Black-backed Gull / Kleine Mantelmeeuw *Larus fuscus*, second calendar-year, Wijster, Drenthe, Netherlands, 5 August 2001 *(Rik Winters)*. *Intermedius*-type. Note many coverts worn and with contrasting white and brown pattern; tail-feathers non-juvenile; worn second-generation scapulars pale with only dark shaft-streak broadening towards base; new scapulars remarkably pale.

whether any remaining juvenile feathers are present or not. The exception to this rule may be the birds that have replaced only a few inner primaries as part of their first moult.

Although some birds may start this moult as early as April, others delay it until late June or even early July. Birds with a more extensive first moult start moulting later, on average. In early July, one bird had only dropped p1, while many other birds were already growing p6 or p7. Only one of the birds that returned with new primaries had already started a new moult wave in June (p2 missing).

Birds that return with coverts renewed in the first moult usually retain these new feathers until later during the moult. Meanwhile, they replace any remaining juvenile coverts. In birds with an extensive first moult, the primary moult can be well advanced (up to p7) without any signs of moult in the coverts.

Birds returning to Finland with new primaries also start their second moult in summer but apparently never replace more than four (inner) primaries during their stay (see Koskinen & Rauste (2006) for details on moult of Finnish *fuscus*). Some second calendar-year Lesser Black-backed Gulls (presumed *fuscus*) disappear long before finishing the replacement of all primaries, suggesting they may fly south again with juvenile outer primaries.

Birds that had replaced only their inner primaries

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197 Lesser Black-backed Gull / Kleine Mantelmeeuw *Larus fuscus*, second calendar-year, Wijster, Drenthe, Netherlands, 20 August 2000 *(Rik Winters)*. Plumage and moult rather similar to bird in plate 195 but note *graellsii*-like size and structure. **198** 'Lesser black-backed gull' / 'kleine mantelmeeuw' *Larus fuscus/heuglini*, second calendar-year, Wijster, Drenthe, Netherlands, 9 July 2000 *(Rik Winters)* **199** 'Lesser black-backed gull' / 'kleine mantelmeeuw' *Larus fuscus/heuglini*, second calendar-year, Wijster, Drenthe, Netherlands, 15 July 2000 *(Rik Winters)*. Same bird as in plate 198. **200** Probable Heuglin's Gull / waarschijnlijke Heuglins Meeuw *Larus heuglini*, second calendar-year (front), and Lesser Black-backed Gulls / Kleine Mantelmeeuwen *L fuscus*, Wijster, Drenthe, Netherlands, 10 June 2001 *(Rik Winters)*

during the first moult may then show three 'generations' of primaries (juvenile, second generation grown during the first winter and second generation grown during the first summer), a feature that is not expected to occur in the western taxa *graellsii* and *intermedius*. The existence of such a moult pattern has been proven by a bird observed in Italy in the autumn of 2004 that showed just such a moult pattern (Menotti Passarella in litt).

By the time the birds leave for the wintering grounds in the autumn of the second calendar-year, most if not all *graellsii* will have completed the second moult. Most *intermedius* will have done so too. In *fuscus*, the vast majority, if not all birds, migrate with (at least) two generations of primaries and only *fuscus* may, on current knowledge, be expected to occasionally show three generations (or technically more correct: two moult contrasts).

Third moult

Strictly spoken the third moult comprises only those feathers that are replaced after finishing the second (complete) moult. The extent of this moult is again very variable, like the first moult, and usually partial.

Birds observed in the Netherlands after returning north during the spring of their third calendar-year again show a high degree of variability in moult patterns. Much of this variation can only be attributed to moult on the wintering grounds. The moult attributable to the third moult again largely follows the sequence described for birds during their first moult in winter and this idea has recently been confirmed on a thorough data-set (Muusse et al 2005). I found many (100+) third calendar-year spring birds showing a moult contrast in the primaries, and such birds had usually renewed all of their wing-coverts, but exceptions to this rule occur

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201 'Lesser black-backed gull' / 'kleine mantelmeeuw' *Larus fuscus/heuglini*, second calendar-year, Wijster, Drenthe, Netherlands, 14 May 2000 *(Rik Winters)* **202** 'Lesser black-backed gull' / 'kleine mantelmeeuw' *Larus fuscus/heuglini*, second calendar-year, Wijster, Drenthe, Netherlands, 24 June 2000 *(Rik Winters)* **203** Lesser Black-backed Gulls / Kleine Mantelmeeuwen *Larus fuscus graellsii*, third calendar-year, Wijster, Drenthe, Netherlands, 22 June 2001 *(Rik Winters)*. Ringed in Britain; plumage typical for this type. **204** Lesser Black-backed Gull / Kleine Mantelmeeuw *Larus fuscus*, third calendar-year, Wijster, Drenthe, Netherlands, 15 July 2001 *(Theo Bakker)*. *Graellsii*-type. Typical bird, but note dark iris.

(see, eg, plate 212). The variation in the number of new primaries was very large and the contrasts between the two generations of primaries could be anywhere in the wing. Based on plumage features like the rather dark grey and not blackish back, I believe that the vast majority of these birds are *intermedius* rather than *fuscus*. That *intermedius* can show such a moult pattern was proven by a colour-ringed third calendar-year bird showing nine new primaries (Adriaens 2002). Furthermore, the unmoulted primaries of these birds were typically rather brown and moderately worn, indicating they were replaced the summer before, which does not fit the moult schedule of typical *fuscus* but does fit the western taxa.

Fuscus typically returns north in the third calendar-year with a moult contrast in the primaries (Jonsson 1998, Rauste 1999). The moult patterns of third calendar-year spring *fuscus* was reviewed by Annika Forsten (in Gibbins 2004). She proposed several possible interpretations of the observed patterns. Although the exact moult leading to the patterns was left undecided there, based on the arguments available these birds most likely finish the primary moult they started during summer and replace the inner primaries in a second moult wave. Apparently the second wave normally includes at least all primaries moulted during the previous summer, but usually more. In *fuscus* the moult contrast between primary generations is typically around p6. As all primaries have been replaced during winter, all these feathers are rather fresh and black, and the moult contrast is usually rather inconspicuous and sometimes very hard to see.

These different moult patterns may lead to zero, one, or even two moult contrasts in the wing on a bird returning north during its third calendar-year depend-