**EVALUATION OF BREADALBANE DMG POPULATION MODELS**

*What is the purpose of this paper?*

The purpose of this short paper is to look at the population models and counts since 2015, and advise on culls going forwards for the period 2022-27 as part of the deer management planning process.

There are 2 X population models included. One projects the population from 2015 through to present given actual culls/ recruitment rates etc. The other has been adjusted after 2017, 2019 and 2021 counts. Both are attached with this document.

*Comparing counts to models*

You can see from the table below, that if we compare the 2015 helicopter count to the 2021 foot count that the overall population appears to be very stable in terms of overall density, and has came down just a little from 11.3 to 10.9 deer per sq km. Within this, the NW and NE areas have came down a bit, the Middle area remains the same, and the South area has went up.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sub Area** | **2015 density per 100 ha** | **2021 Density per 100 ha** | **Stag Difference- Unadjusted** | **Stag Difference- Adjusted** | **Hind difference- Unadjusted** | **Hind difference adjusted** |
| North West | 11.9 | 9.0 | -321 | +33 | -124 | -189 |
| North East | 17.6 | 17.2 | -263 | -25 | +397 | +217 |
| Middle | 9.6 | 9.7 | +220 | -5 | +377 | +107 |
| South | 8.1 | 9.3 | +328 | -57 | +221 | +386 |
| **Whole DMG** | **11.3** | **10.9** | **-35** | **-54** | **+870** | **+520** |

Comparing the 2021 count to the projected count, and without any adjustments within population models to allow for interim foot counts, the stag figures suggest our counts align extremely closely with projected numbers (**-35**), even over a six year period, but that the NW and NE areas are exporting stags to the Middle and South Groups. However, the adjusted figure which effectively looks at the difference between 2019 and 2021 shows very little difference at all. So, we seem to have a very good handle on stag numbers, but they are not always where we think they might be, and this has big implications for people, and for our modelling.

The hinds are different. Both the adjusted and unadjusted models show very large differences between counted hind numbers, and projected numbers. In both cases, we are counting significantly more hinds than projected, even over the two year period between 2019- 21.

While some hinds may have been hidden in earlier counts, including the helicopter count, it is probably more likely that:

1. Some calves or young stags may be getting counted as hinds
2. Calves or young stags might be getting counted as hinds in recruitment counts, meaning that our recruitment rates may be higher than we actually think.

However, from the information that we have, it appears that the overall BDMG deer population is fairly stable. It is likely that there will be a helicopter count in the next year or two, and that will act as an independent check.

You will see in the population models that when we project the 2020-21 cull forward for 5 Years, the population disappears in several of the sub areas, so clearly, there are aspects of the population model that are not correct and we need to work out what they are. We have had a fairly stable and consistent cull over the period 2015- 2021, and the population seems stable, so that would imply the current culls are about right. But clearly, something is not right with the modelling. An independent check will clarify if we indeed do have a stable population, or if we are badly off course, although this seems unlikely.

*Deer Numbers*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sub Area** | **Spring stags 2015** | **Spring stags 2021** | **Difference** | **Spring hinds 2015** | **Spring Hinds 2021** | **Difference** |
| North West | 798 | 574 | -224 | 1063 | 828 | -235 |
| North East | 801 | 653 | -148 | 1425 | 1444 | +19 |
| Middle | 494 | 577 | +83 | 1254 | 1122 | -132 |
| South | 532 | 735 | +203 | 939 | 911 | -28 |
| **Whole DMG** | **2605** | **2539** | **-66** | **4681** | **4305** | **-376** |

The above section showed the difference between counted and modelled figures. This section shows the 2015 and 2021 counted figures.

In the NW area, although fairly low hind culls have been set to allow the population to grow a bit, the numbers of stags and hinds have both went down. It appears this may be more to do with movement rather than culling more than recruitment.

In the NE area, the stags have came down, but the hinds look to be very steady.

In the Middle area, the stags look steady, and the hinds have came down.

In the South area, stags have went up significantly, and the hinds look to be steady.

Overall, at a DMG level, the stags look very steady, and the hinds have came down a bit (although the difference between modelling and counting suggests there are a lot more there than there should be).

*Summary*

We can take both reassurance and confusion from the figures. The information suggests we have a stable population, and the feedback at meetings suggests this to be broadly correct, but there are different things going on in different places, and the population models have broken down.

The recommendation is to therefore maintain the current level of culls, adjusted for recruitment/ mortality etc, until such times as we can get an independent count to determine where we currently are. A 2023 helicopter count would be perfect, which would then be eigt years after the last one.

Victor Clements

*14th January 2022*