Supporting Information

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Forsyth, D. M., S. Comte, N. E. Davis, A. J. Bengsen, S. D. Côté, D. G. Hewitt, N. Morellet, and A. Mysterud. Methodology matters when estimating deer abundance: a global systematic review and recommendations for improvements. Journal of Wildlife Management

**S3.** **Objectives of Publications Reporting Deer Abundance and Density Estimates**

We first classified each publication reporting deer abundance or density (i.e., abundance) estimates into 1 of the following 10 primary objectives:

**Ecology**: abundance was estimated to contribute to general knowledge of the deer species.

**Methodological**: abundance was estimated to improve field and statistical methods for estimating deer abundance.

**Predator**: abundance was estimated to understand the role or the availability of deer as food for predators.

**Native vegetation**: abundance was estimated to understand the impacts of deer on native plants or native plant communities.

**Wildlife**: abundance was estimated to understand competition for food between deer and other wildlife.

**Forestry**: abundance was estimated to understand the impacts of deer on forestry activities.

**Vehicle collision**: abundance was estimated to understand the risk of collision between deer and vehicles.

**Wildlife disease**: abundance was estimated to understand the role of deer in the spread of pathogens or parasites.

**Crop production**: abundance was estimated to understand the impacts of deer on crop production.

**Livestock production**: abundance was estimated to understand the impacts of deer on food for domestic livestock.

If 1 publication reported several deer abundance estimates, then all those estimates were classified as having the same objective. If a publication addressed multiple objectives, then we classified it to the most dominant objective (i.e., one objective per publication; Table S3.1).

In addition to identifying their primary objective, we also identified publications directly associated with deer management. We only considered publications that used the estimates of deer abundance and density in relation to a management operation or tool aimed at directly influencing the deer population or its impact on natural or anthropogenic assets. We classified these estimates based on the direction of the management of the deer population: reducing, maintaining, or increasing abundance or density. As for the main objectives, we made this classification at the publication level and it was exclusive (1 management objective per publication, attributed to all estimates from the publication; Tables S3.2 and S3.3).

**Table S3.1.** Summary of the general objectives of articles reporting deer abundance and density estimates published during 2004–2018.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| General objective |  |  | Region |  |  |  | Total |
| Europe | North America | South America | Asia | Australasia |  | Number | Proportion |
| Ecology | 826 | 654 | 86 | 379 | 0 |  | 1,945 | 0.50 |
|  |  |  |  |  |  |  |  |  |
| Methodological | 363 | 636 | 34 | 113 | 27 |  | 1,173 | 0.30 |
|  |  |  |  |  |  |  |  |  |
| Predator | 55 | 189 | 0 | 46 | 0 |  | 290 | 0.07 |
| Native vegetation | 19 | 84 | 0 | 16 | 3 |  | 122 | 0.03 |
| Wildlife | 25 | 0 | 0 | 6 | 0 |  | 31 | 0.01 |
|  |  |  |  |  |  |  |  |  |
| Forestry | 159 | 37 | 0 | 6 | 0 |  | 202 | 0.05 |
| Vehicle collision | 0 | 42 | 0 | 0 | 0 |  | 42 | 0.01 |
| Wildlife disease | 11 | 22 | 0 | 0 | 0 |  | 33 | 0.01 |
| Crop production | 3 | 2 | 0 | 14 | 0 |  | 19 | 0.00 |
| Livestock production | 0 | 0 | 13 | 0 | 0 |  | 13 | 0.00 |
| Total | 1,461 | 1,666 | 133 | 580 | 30 |  | 3,870 | 1.00 |

**Table S3.2.** Regional variation in the percentage of deer abundance and density estimates published during 2004–2018 linked to a clearly stated management objective of reducing, maintaining, or increasing deer abundance. Numbers of estimates are given in parentheses.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Management objective | Europe | North America | South America | Asia | Australasia | Total |
| Reducing populations | 94% (47) | 71% (158) | 0% (0) | 29% (14) | 100% (3) | 68% (222) |
| Sustaining populations | 0% (0) | 14% (31) | 100% (4) | 71% (34) | 0% (0) | 21% (69) |
| Increasing populations | 6% (3) | 14% (32) | 0% (0) | 0% (0) | 0% (0) | 11% (35) |

**Table S3.3.** Variation in the percentage of deer abundance and density estimates published during 2004–2018 linked to a clearly stated management objective of reducing, maintaining, or increasing deer abundance by objective. Numbers of estimates are given in parentheses.

|  |  |  |
| --- | --- | --- |
| General objective | Total studies | Management objective |
| Reducing | Sustaining | Increasing | Total |
| Ecology | 1,945 | 5.5% (107) | 1.8% (35) | 1.8% (35) | 9.1% (177) |
| Methodological | 1,173 | 3.6% (42) | 0.3% (4) | 0% (0) | 3.9% (46) |
| Predator | 290 | 0% (0) | 10.3% (30) | 0% (0) | 10.3% 30 |
| Native vegetation | 122 | 22.1% (27) | 0% (0) | 0% (0) | 22.1% (27) |
| Wildlife | 31 | 0% (0) | 0% (0) | 0% (0) | 0% (0) |
| Forestry | 202 | 2.5% (5) | 0% (0) | 0% (0) | 2.5% (5) |
| Vehicle collision | 42 | 47.6% (20) | 0% (0) | 0% (0) | 47.6% (20) |
| Wildlife disease | 33 | 21.2% (7) | 0% (0) | 0% (0) | 21.2% (7) |
| Crop production | 19 | 73.7% (14) | 0% (0) | 0% (0) | 73.7% (14) |
| Livestock production | 13 | 0% (0) | 0% (0) | 0% (0) | 0% (0) |
| Total | 3,870 | 5.7% (222) | 1.8% (69) | 0.9% (35) | 8.4% (326) |