

3 Conservation programmes are used to save endangered species.

The Scottish wildcat, shown in the photograph, is a subspecies of the European wildcat, *Felis silvestris silvestris*.



The Cairngorms Wildcat Project estimates that there are 150 breeding pairs left, but the Scottish Wildcat Association believes that only 35 cats remain.

A conservation group proposed that a captive breeding programme, and the relocation of Scottish wildcats, would be necessary to prevent extinction.

(a) (i) State why the Scottish wildcat has been described as **endemic**.

(1)

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(ii) The Scottish wildcat can interbreed successfully with domestic cats.

Explain the effect this could have on the genetic diversity of the Scottish wildcat.

(2)

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| Question Number | Answer | Additional Guidance | Mark |
|------------------------|---|----------------------------|-------------|
| 3(a)(i) | An answer that makes reference to the following: <ul style="list-style-type: none"> it is found {in one location / only in Scotland} | DO NOT ALLOW habitat | (1) |

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|------------------------|---|--|-------------|
| 3(a)(ii) | An explanation that makes reference to the following: <ul style="list-style-type: none"> increases (genetic diversity)/increases size of gene pool (1) because of introduction of {new/different} alleles (into the population) (1) | ALLOW increase variety of alleles ALLOW maintain genetic diversity | (2) |

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|------------------------|---|--|-------------|
| 3(b) | An explanation that makes reference to the following: <ul style="list-style-type: none"> (compare) sequences of {bases in DNA /amino acids in proteins} (1) the more similarities in common the more closely-related the subspecies (1) | ALLOW nucleotides for bases ALLOW more recently evolved from a common ancestor ALLOW converse statements | (2) |

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|-----------------|--|--|------|
| 3(c) | <p>A description that makes reference to the following:</p> <ul style="list-style-type: none"> • (relocating) isolates Scottish wildcats from domestic cats (1) • use of {studbooks/selection of mates} (1) • increase the number (of Scottish wildcats) (1) • prepared for reintroduction (to native habitat) (1) | <p>ALLOW moves away instead of isolates</p> <p>ALLOW hacking out</p> | (4) |