**Table S1:** Case studies species and the environmental parameters used in the habitat suitability model (elevation and habitat preferences).

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| species | habitat (land use classes) | elevation (m) |
| *Aquila adalberti* | 40; 50; 60; 70; 90; 100; 110; 120; 130; 140; 160; 170; 180; | 0 – all the highest peaks |
| *Brachyteles arachnoides* | 40; 50; 60; 70; 90; 100; 110; 120; 130; 140; 160; 170; 180; | 600 – 1,800 |
| *Eulemur flavifrons* | 11;14;20;30;40; 50; 60; 70; 90; 100; 110; 130; 160; 170; 180; | 0 – 1,200 |
| *Heloderma suspectum* | 40; 50; 60; 70; 90; 100; 110; 120; 130; 140; 150; 160; 170; 180; 200; | 0 – 1,950 |
| *Sarcophilus harrisii* | 11; 14; 20; 30; 60; 70; 100; 110; 120; 160; 170; 180; | 0 – all the highest peaks of Tasmania |

**Table S2:** Case studies species and the biological parameters used in the habitat suitability model. The data was collected from a literature review and in which we based the individual area requirement and the daily path length. IAR=individual area requirement (km2); M/S= movement/season (m); dlp=daily path length. Home range is different for each species (for *A. adalberti* based on home range size of a breeding couple; for *B. arachnoides* and *H. suspectum* *IAR* was based on the female home range size because for these species, females establish territories while males move among flocks; for *S. harrisii* *IAR* was based on female home range because male and female does not take care of offspring together and, therefore, live alone; for *E. flavifrons* was based on flock home range size.

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| Species | Home range (km2) | M/S (m) | Season (days) | dlp (m) | α | Source |
| *A. adalberti* | 52.00 | 138000 | 1095 | 126 | 0.0097 | (Ferrer 1993, Ferrer et al. 2004, González et al. 2006) |
| *B. arachnoides* | 0.04 | 630 | 1 | 630 | 0.0027 | (Milton 1984, Strier 1987) |
| *E. flavifrons* | 0.05 | 645 | 1 | 645 | 0.0034 | (Schwitzer et al. 2007, Volampeno et al. 2011) |
| *H. suspectum* | 0.06 | 210 | 0.03 | 213 | 0.0389 | (Jones 1983, Beck 1990) |
| *S. harrisii* | 13.30 | 8600 | 1 | 8600 | 0.0010 | (Guiler 1970, Pemberton 1990) |



Figure S1: *A. adalberti* landscape showing habitat patches at minimum carrying capacity (lime green) determined by *Ecologically Scaled Landscape Index* for carrying capacity (*ESLIk)*. The patches in gray have no minimum area and are isolated according *A. adalberti Ecologically Scaled Landscape Index* for functional connectivity. The landscape was drown through deductive habitat suitability model on geographical range available at IUCN web site (IUCN 2012).



Figure S2: *B. arachnoides* landscape showing habitat patches at minimum carrying capacity (lime green) determined by *Ecologically Scaled Landscape Index* for carrying capacity (*ESLIk)* and habitat patches at minimum carrying capacity and functionally connected (fir green) determined by *Ecologically Scaled Landscape Index* for functional connectivity (*ESLIc*). There is no patch under minimum area according *ESLIk*. The landscape was drown through deductive habitat suitability model on geographical range available at IUCN web site (IUCN 2012).



Figure S3: *E. flavifrons* landscape showing habitat patches at minimum carrying capacity (lime green) determined by *Ecologically Scaled Landscape Index* for carrying capacity (*ESLIk)* and habitat patches at minimum carrying capacity and functionally connected (fir green) determined by *Ecologically Scaled Landscape Index* for functional connectivity (*ESLIc*). There is no patch under minimum area according *ESLIk*. The landscape was drown through deductive habitat suitability model on geographical range available at IUCN web site (IUCN 2012).



Figure S4: *H. suspectum* landscape showing habitat patches at minimum carrying capacity determined by *Ecologically Scaled Landscape Index* for carrying capacity (*ESLIk)* and functionally connected (fir green) determined by *Ecologically Scaled Landscape Index* for functional connectivity (*ESLIc*). There is no patch under minimum area according *ESLIk* neither under minimum functional distance according to *ESLIc.* The landscape was drown through deductive habitat suitability model on geographical range available at IUCN web site (IUCN 2012).



Figure S5: *S. harrisii* landscape showing habitat patches at functional distance (lime green) determined by *Ecologically Scaled Landscape Index* for carrying capacity (*ESLIk)* and habitat patches at minimum carrying capacity and functionally connected (fir green) determined by *Ecologically Scaled Landscape Index* for functional connectivity (*ESLIc*). There is no patch under minimum functional distance according *ESLIc*. The landscape was drown through deductive habitat suitability model on geographical range available at IUCN web site (IUCN 2012).