

## Supplementary material

Appendix S1. Variables and classes used in the random stratified sampling design.

Variable	Number of classes	Classes
Elevation	4	Colline (<700 m) Montane (700–1300 m) Subalpine (1300–1900 m) Alpine+nival (>1900 m)
Aspect	2	North slopes (0–90°+270–360°) South slopes (90–270°)
Slope	3	0–10° 10–45° 45–90°
Geology	4	Calcareous permeable Calcareous unpermeable Other rock types permeable Other rock types unpermeable
Land cover	3	Exploited (i.e. pasture) Unexploited meadows Rocks and screes

Appendix S2. Dispersal categories as defined by Vittoz and Engler (2007). The given Dispersal distance corresponds to the maximum dispersal distance of 99% of the seeds, which thus excludes long-distance dispersal events. For details on how these categories were obtained see Vittoz and Engler (2007).

Type	Dispersal distance [m] of 99% of seeds	Corresponding dispersal modes
1	1	Blastochory (autochory) Boleochory (anemochory) for species < 30 cm Ombrochory (hydrochory)
2	5	Ballochory (autochory) Cystometeorochory (anemochory) Chamaechory (anemochory) for fruits in grassland Boleochory (anemochory) for species > 30 cm
3	15	Pterometeorochory (anemochory) for herbs Myrmecochory (zoochory) Cystometeorochory (anemochory) ferns, Orchidaceae, Pyrolaceae, Orobanchaceae in forest Trichometeorochory (anemochory) in forest or little efficient plumes Epizoochory (zoochory) for small mammals
4	150	Chamaechory (anemochory) for seeds on snow or dry inflorescence Pterometeorochory (anemochory) for trees Dyszoochory (zoochory) for seeds not stocked and dispersed by small animals
5	500	Trichometeorochory (anemochory) in openland with efficient plumes Cystometeorochory (anemochory) ferns, Orchidaceae, Pyrolaceae, Orobanchaceae in openland
6	1500	Dyszoochory (zoochory) for seeds stocked by large animals Endozoochory (zoochory) for seeds eaten by birds and large vertebrates Epizoochory (zoochory) by large mammals
7	5000	Agochory (anthropochory)

## References

Vittoz, P. and Engler, R. 2007. Seed dispersal distances: a typological system for data analyses and models. – *Bot. Helv.* 117: 109–124.

Appendix S3. Dispersal category, generation time and resilience time assigned to each of the 287 species used in the study. Nomenclature follows Aeschmann and Heitz (1996).

Species name	Dispersal category	Generation time [yr]	Resilience time [yr]	Species name	Dispersal category	Generation time [yr]	Resilience time [yr]
<i>Acer pseudoplatanus</i>	4	30	50	<i>Knautia arvensis</i>	7	2	5
<i>Achillea atrata</i>	1	3	5	<i>Knautia dipsacifolia s.str.</i>	3	2	5
<i>Achillea millefolium</i>	6	2	5	<i>Laserpitium latifolium</i>	3	3	5
<i>Acinos alpinus</i>	6	2	5	<i>Lathyrus pratensis</i>	6	2	5
<i>Aconitum napellus aggr.</i>	1	2	5	<i>Leontodon autumnalis</i>	3	2	5
<i>Adenostyles glabra</i>	5	2	5	<i>Leontodon hispidus s.l.</i>	3	2	5
<i>Agrostis alpina</i>	3	2	5	<i>Leucanthemum vulgare aggr.</i>	6	2	5
<i>Agrostis capillaris</i>	6	1	5	<i>Ligusticum mutellina</i>	6	2	5
<i>Agrostis rupestris</i>	3	2	5	<i>Linaria alpina s.str.</i>	1	2	5
<i>Agrostis schraderiana</i>	3	2	5	<i>Linum alpinum</i>	1	2	5
<i>Agrostis stolonifera</i>	6	1	5	<i>Linum catharticum</i>	6	1	0
<i>Ajuga reptans</i>	3	1	5	<i>Lolium perenne</i>	6	1	5
<i>Alchemilla conjuncta aggr.</i>	6	2	5	<i>Lotus alpinus</i>	6	2	5
<i>Alchemilla coriacea aggr.</i>	6	1	5	<i>Lotus corniculatus</i>	6	1	5
<i>Alchemilla decumbens aggr.</i>	6	2	5	<i>Luzula alpinopilosa</i>	6	2	5
<i>Alchemilla glabra aggr.</i>	6	1	5	<i>Luzula campestris</i>	6	2	5
<i>Alchemilla xanthochlora aggr.</i>	6	2	5	<i>Luzula multiflora</i>	6	2	5
<i>Androsace chamaejasme</i>	4	2	5	<i>Luzula sylvatica</i>	3	2	5
<i>Anemone narcissiflora</i>	3	2	5	<i>Medicago lupulina</i>	6	1	0
<i>Anthoxanthum odoratum aggr.</i>	7	2	5	<i>Myosotis alpestris</i>	4	2	5
<i>Anthriscus sylvestris</i>	6	2	5	<i>Myosotis arvensis</i>	7	1	0
<i>Anthyllis vulneraria s.l.</i>	6	1	5	<i>Myosotis decumbens</i>	6	1	5
<i>Aposeris foetida</i>	3	2	5	<i>Nardus stricta</i>	7	2	5
<i>Arabis alpina s.str.</i>	1	2	5	<i>Nigritella rhellicani</i>	5	2	5
<i>Arabis caerulea</i>	1	2	5	<i>Oxytropis jacquinii</i>	2	2	5
<i>Arabis hirsuta</i>	1	1	5	<i>Parnassia palustris</i>	2	2	5
<i>Arnica montana</i>	3	2	5	<i>Pedicularis foliosa</i>	7	2	5
<i>Arrhenatherum elatius</i>	7	2	5	<i>Pedicularis verticillata</i>	1	3	5
<i>Asplenium viride</i>	5	2	5	<i>Petasites paradoxus</i>	5	2	5
<i>Aster bellidiastrum</i>	3	2	5	<i>Phleum alpinum aggr.</i>	3	2	5
<i>Astrantia major</i>	6	2	5	<i>Phleum hirsutum</i>	3	2	5
<i>Athamanta cretensis</i>	1	2	5	<i>Phleum pratense</i>	6	1	5
<i>Bartsia alpina</i>	1	2	5	<i>Phleum rhaeticum</i>	3	2	5
<i>Bellis perennis</i>	6	2	5	<i>Phyteuma orbiculare</i>	6	2	5
<i>Biscutella laevigata</i>	3	1	5	<i>Phyteuma spicatum</i>	1	2	5
<i>Botrychium lunaria</i>	5	2	5	<i>Picea abies</i>	6	40	50
<i>Brachypodium pinnatum</i>	3	1	5	<i>Pimpinella major</i>	7	2	5
<i>Briza media</i>	3	2	5	<i>Pimpinella saxifraga aggr.</i>	7	2	5
<i>Bromus erectus s.str.</i>	4	2	5	<i>Plantago alpina</i>	6	2	5
<i>Bromus hordeaceus</i>	7	1	0	<i>Plantago atrata s.str.</i>	6	2	5
<i>Calamagrostis varia</i>	5	2	5	<i>Plantago lanceolata</i>	7	1	5
<i>Campanula barbata</i>	1	2	5	<i>Plantago major s.str.</i>	6	1	5
<i>Campanula cochleariifolia</i>	1	2	5	<i>Plantago media</i>	6	2	5
<i>Campanula rhomboidalis</i>	1	1	5	<i>Poa alpina</i>	6	2	5
<i>Campanula rotundifolia</i>	6	1	5	<i>Poa cenisia</i>	6	2	5
<i>Campanula scheuchzeri</i>	1	2	5	<i>Poa minor</i>	6	2	5
<i>Cardamine pratensis</i>	2	2	5	<i>Poa pratensis</i>	7	1	5

<i>Carduus defloratus s.str.</i>	5	2	5	<i>Poa supina</i>	7	1	5
<i>Carex caryophylla</i>	6	2	5	<i>Poa trivialis s.str.</i>	7	1	5
<i>Carex ferruginea</i>	6	3	5	<i>Polygala alpestris</i>	3	2	5
<i>Carex flacca</i>	4	2	5	<i>Polygala chamaebuxus</i>	3	3	5
<i>Carex montana</i>	3	2	5	<i>Polygala vulgaris s.str.</i>	3	2	5
<i>Carex nigra</i>	2	2	5	<i>Polygonum bistorta</i>	7	2	5
<i>Carex ornithopoda</i>	3	2	5	<i>Polygonum viviparum</i>	1	2	5
<i>Carex pallescens</i>	3	2	5	<i>Polystichum lonchitis</i>	3	2	5
<i>Carex panicea</i>	2	2	5	<i>Potentilla aurea</i>	6	2	5
<i>Carex sempervirens</i>	6	3	5	<i>Potentilla crantzii</i>	1	2	5
<i>Carex sylvatica</i>	6	2	5	<i>Potentilla erecta</i>	4	1	5
<i>Carlina acaulis</i> subsp. <i>caulescens</i>	4	2	5	<i>Potentilla sterilis</i>	3	2	5
<i>Carum carvi</i>	6	1	0	<i>Primula auricula</i>	1	2	5
<i>Centaurea jacea s.str.</i>	6	1	5	<i>Primula elatior s.str.</i>	6	2	5
<i>Centaurea montana</i>	3	2	5	<i>Primula veris s.l.</i>	1	2	
<i>Centaurea scabiosa s.l.</i>	4	1	5	<i>Pritzelago alpina s.str.</i>	1	2	5
<i>Cerastium arvense s.l.</i>	1	1	5	<i>Prunella grandiflora</i>	6	2	5
<i>Cerastium fontanum</i> subsp. <i>vulgare</i>	7	1	5	<i>Prunella vulgaris</i>	6	2	5
<i>Cerastium latifolium</i>	1	3	5	<i>Pulsatilla alpina s.str.</i>	3	2	5
<i>Chaerophyllum aureum</i>	1	2	5	<i>Ranunculus aconitifolius</i>	2	2	5
<i>Chaerophyllum hirsutum</i> <i>aggr.</i>	1	2	5	<i>Ranunculus acris s.l.</i>	7	1	5
<i>Cirsium acaule</i>	5	2	5	<i>Ranunculus alpestris</i>	6	2	5
<i>Cirsium eriophorum s.str.</i>	5	2	0	<i>Ranunculus bulbosus</i>	4	2	5
<i>Cirsium palustre</i>	5	2	0	<i>Ranunculus montanus aggr.</i>	3	2	5
<i>Cirsium spinosissimum</i>	5	2	5	<i>Ranunculus nemorosus</i> <i>aggr.</i>	6	2	5
<i>Clinopodium vulgare</i>	4	2	5	<i>Ranunculus repens</i>	3	1	5
<i>Coeloglossum viride</i>	5	2	5	<i>Rhinanthus alectorolophus</i>	7	1	0
<i>Colchicum autumnale</i>	7	2	5	<i>Rhinanthus minor</i>	1	1	0
<i>Crepis aurea</i>	4	2	5	<i>Rhododendron ferrugineum</i>	1	5	10
<i>Crepis biennis</i>	7	2	5	<i>Rosa pendulina</i>	6	3	10
<i>Crepis pyrenaica</i>	7	2	5	<i>Rubus idaeus</i>	6	2	5
<i>Crocus albiflorus</i>	7	2	5	<i>Rumex acetosa</i>	6	1	5
<i>Cruciata laevipes</i>	7	2	5	<i>Rumex alpestris</i>	7	2	5
<i>Cynosurus cristatus</i>	6	2	5	<i>Rumex alpinus</i>	6	2	5
<i>Cystopteris fragilis</i>	5	2	5	<i>Rumex crispus</i>	4	2	5
<i>Dactylis glomerata</i>	7	1	5	<i>Sagina saginoides</i>	6	2	5
<i>Dactylorhiza maculata</i>	5	2	5	<i>Salix reticulata</i>	5	3	5
<i>Daphne mezereum</i>	6	5	10	<i>Salix retusa</i>	5	3	5
<i>Daucus carota</i>	6	2	0	<i>Salvia pratensis</i>	4	2	5
<i>Deschampsia cespitosa</i>	7	2	5	<i>Sanguisorba minor s.str.</i>	2	2	5
<i>Doronicum grandiflorum</i>	5	3	5	<i>Saxifraga aizoides</i>	1	3	5
<i>Draba aizoides</i>	1	2	5	<i>Saxifraga androsacea</i>	1	2	5
<i>Dryas octopetala</i>	3	2	5	<i>Saxifraga moschata s.l.</i>	4	3	5
<i>Elyna myosuroides</i>	6	2	5	<i>Saxifraga oppositifolia</i>	1	3	5
<i>Epilobium anagallidifolium</i>	5	1	5	<i>Saxifraga paniculata</i>	4	3	5
<i>Erigeron uniflorus</i>	5	2	5	<i>Scabiosa lucida</i>	3	2	5
<i>Euphorbia cyparissias</i>	7	1	5	<i>Sedum atratum</i>	1	1	0
<i>Euphrasia hirtella</i>	1	1	0	<i>Selaginella selaginoides</i>	5	2	5
<i>Euphrasia minima</i>	1	1	0	<i>Senecio doronicum</i>	3	2	5
<i>Euphrasia rostkoviana s.str.</i>	1	1	0	<i>Sesleria caerulea</i>	6	2	5
<i>Euphrasia salisburgensis</i>	1	1	0	<i>Silene acaulis</i>	1	5	5
<i>Festuca arundinacea s.l.</i>	3	1	5	<i>Silene dioica</i>	6	1	0

<i>Festuca ovina</i> aggr.	3	2	5	<i>Silene vulgaris</i> s.str.	7	1	5
<i>Festuca pratensis</i> s.l.	3	1	5	<i>Soldanella alpina</i>	1	2	5
<i>Festuca quadriflora</i>	4	2	5	<i>Solidago virgaurea</i> s.l.	3	2	5
<i>Festuca rubra</i> aggr.	7	1	5	<i>Stachys officinalis</i> s.str.	1	2	5
<i>Festuca violacea</i> aggr.	3	2	5	<i>Stellaria graminea</i>	1	1	5
<i>Fragaria vesca</i>	6	2	5	<i>Taraxacum alpinum</i> aggr.	5	2	5
<i>Fraxinus excelsior</i>	4	20	50	<i>Taraxacum officinale</i> aggr.	7	1	5
<i>Galeopsis tetrahit</i>	7	1	0	<i>Thesium alpinum</i>	6	2	5
<i>Galium album</i>	6	2	5	<i>Thlaspi repens</i>	1	2	5
<i>Galium anisophyllum</i>	6	1	5	<i>Thymus praecox</i> subsp. <i>polytrichus</i>	6	2	5
<i>Galium megalospermum</i>	1	3	5	<i>Thymus pulegioides</i> s.str.	6	2	5
<i>Galium pumilum</i>	6	1	5	<i>Tofieldia calyculata</i>	1	2	5
<i>Gentiana acaulis</i>	1	2	5	<i>Tragopogon pratensis</i> subsp. <i>orientalis</i>	7	2	5
<i>Gentiana bavarica</i>	1	3	5	<i>Traunsteinera globosa</i>	5	3	5
<i>Gentiana campestris</i> s.str.	6	2	0	<i>Trifolium badium</i>	6	2	5
<i>Gentiana clusii</i>	1	2	5	<i>Trifolium medium</i>	6	2	5
<i>Gentiana lutea</i>	4	2	5	<i>Trifolium montanum</i>	6	2	5
<i>Gentiana purpurea</i>	1	2	5	<i>Trifolium pratense</i> s.str.	6	1	5
<i>Gentiana verna</i>	1	2	5	<i>Trifolium repens</i> s.str.	7	1	5
<i>Geranium sylvaticum</i>	6	2	5	<i>Trifolium thalii</i>	6	2	5
<i>Geum montanum</i>	3	3	5	<i>Trisetum flavescens</i>	3	2	5
<i>Geum rivale</i>	6	2	5	<i>Trollius europaeus</i>	7	2	5
<i>Geum urbanum</i>	6	1	5	<i>Tussilago farfara</i>	5	2	5
<i>Glechoma hederacea</i> s.str.	3	1	5	<i>Urtica dioica</i>	7	1	5
<i>Globularia cordifolia</i>	2	2	5	<i>Vaccinium gaultherioides</i>	6	5	5
<i>Globularia nudicaulis</i>	2	2	5	<i>Vaccinium myrtillus</i>	7	3	5
<i>Gymnadenia conopsea</i>	5	3	5	<i>Vaccinium vitis-idaea</i>	7	3	5
<i>Gypsophila repens</i>	1	2	5	<i>Valeriana montana</i>	3	2	5
<i>Hedysarum hedysaroides</i>	3	2	5	<i>Valeriana officinalis</i> aggr.	3	2	5
<i>Helianthemum nummularium</i> s.l.	6	2	5	<i>Valeriana tripteris</i>	3	2	5
<i>Helictotrichon pubescens</i>	3	2	5	<i>Veratrum album</i> subsp. <i>lobelianum</i>	2	3	5
<i>Helictotrichon versicolor</i>	4	2	5	<i>Veronica alpina</i>	1	2	5
<i>Heracleum sphondylium</i> s.l.	7	3	5	<i>Veronica aphylla</i>	1	2	5
<i>Hieracium bifidum</i> aggr.	3	2	5	<i>Veronica arvensis</i>	7	1	0
<i>Hieracium lactucella</i>	3	2	5	<i>Veronica chamaedrys</i>	1	2	5
<i>Hieracium murorum</i> aggr.	3	2	5	<i>Veronica officinalis</i>	6	2	5
<i>Hieracium villosum</i> aggr.	3	2	5	<i>Veronica persica</i>	3	1	0
<i>Hippocrepis comosa</i>	6	2	5	<i>Veronica serpyllifolia</i> s.l.	6	1	0
<i>Holcus lanatus</i>	6	2	5	<i>Vicia cracca</i> s.str.	7	1	5
<i>Homogyne alpina</i>	3	2	5	<i>Vicia sativa</i> s.l.	7	1	0
<i>Hypericum maculatum</i> s.str.	1	2	5	<i>Vicia sepium</i>	6	1	5
<i>Hypericum perforatum</i> s.str.	4	1	5	<i>Viola biflora</i>	4	2	5
<i>Hypochaeris radicata</i>	7	2	5	<i>Viola calcarata</i>	3	2	5
<i>Juncus effusus</i>	1	2	5	<i>Viola hirta</i>	3	2	5
<i>Juniperus communis</i> subsp. <i>nana</i>	6	5	20				

## References

Aeschimann, D. and Heitz, C. 1996. Index synonymique de la flore de Suisse et territoires limitrophes. – Documenta Floristicae Helvetiae.

Appendix S4. Calibration of  $P_{Disp}$ , the colonization probability of a pixel given its distance from a source pixel. This methodology is the same than the one developed in Engler and Guisan (in press). The first step in calibration  $P_{Disp}$  is to define the dispersal kernel used to model regular seed dispersal (i.e., not including LDD). Here this kernel was based on the following negative exponential seed dispersal probability distribution function (eq. S1; Ward et al. 2004, Scheller et al. 2007).

$$P_{seed}(x) = e^{-\left(\frac{x-pixelsize}{DispDist}\right)^{\frac{\ln(1-k)}{DispDist}}} - e^{-x \cdot \left(\frac{\ln(1-k)}{DispDist}\right)} \quad (S1)$$

which can be simplified into the more conventional simple negative exponential form (eq. S2):

$$P_{seed}(x) = \left(1 - k\right)^{\frac{x-pixelsize}{DispDist} - 1} \cdot e^{-x \cdot \left(\frac{\ln(1-k)}{DispDist}\right)} \quad (S2)$$

where  $P_{seed}$  is the probability of a seed reaching distance  $x \geq pixelsize$ ,  $pixelsize$  is the one-dimensional size of a pixel,  $DispDist$  is the dispersal distance reached by the proportion  $k$  of the seeds. Here we set  $k = 0.99$ ,  $DispDist$  thus represents the regular dispersal distance for seeds, i.e. LDD events excluded (these are modelled as a separate process).

Since the surface composed of pixels located at distance  $j$  from a source cell increases with distance from that source cell, the probability of a pixel to receive a seed is computed as (eq. S3):

$$P_{seed}(pixel_j) = \frac{P_{seed}(x)}{Surface_j} \quad (S3)$$

where  $Surface_j$  is the number of pixels covered by all pixels belonging to a same distance class. Assuming that the distribution of successful seeds (i.e. seeds leading a pixel to become colonized) is proportional to the overall distribution of seeds ( $P_{seed}$ ),  $P_{Disp}$  is computed as (eq. S3):

$$P_{Disp}(pixel_j) = 1 - (1 - P_{seed}(pixel_j))^{Successful\ Seeds} \quad (eq. S4)$$

where  $P_{Disp}$  is the probability of colonisation for a target pixel with distance  $j$  from a source pixel and  $Successful\ Seeds$  the number of successful seeds produced by a fully mature source pixel.

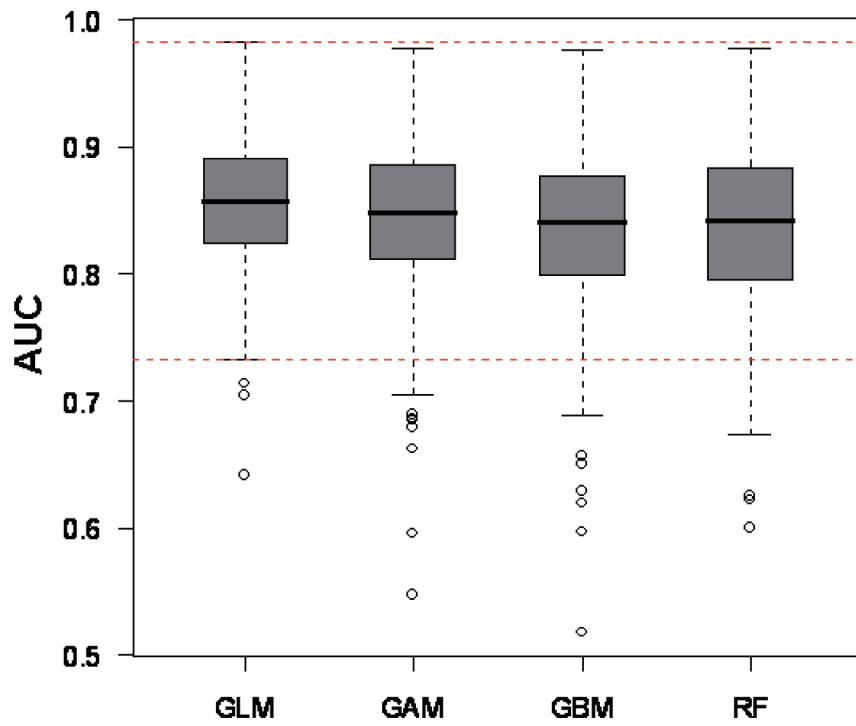
Since the value of  $Successful\ Seeds$  was unknown for our virtual species (as is the case for most species), it was set so that  $P_{Disp} = 0.99$  for a pixel immediately adjacent to a source pixel at 25 m resolution. Using this conservative (i.e. optimistic) calibration method led to average spread rates, for fully mature pixels, between 45 and 85% of  $DispDist$ , depending on the number of source pixels in the neighbourhood (tests run on homogenous landscapes). When running simulations at smaller pixels sizes (i.e. 12.5 and 5 m), the values of  $P_{Disp}$  were recomputed in order to ensure that the production of  $Successful\ Seeds$  per surface unit remained constant. In other words, the number of  $Successful\ Seeds$  was always proportional to pixel size, 5 and 12.5 m pixel producing respectively 25 and 4 times less successful seeds than 25 m pixels. This ensured that the species had always the same seed production per surface unit and thus that their spread rate was independent of the cell size at which simulations were run.

For more details on the MigClim model and its parameters see Engler and Guisan (in press).

## References

- Scheller, R. M. et al. 2007. Design, development, and application of LANDIS-II, a spatial landscape simulation model with flexible temporal and spatial resolution. – *Ecol. Model.* 201: 409–419.
- Ward, B. C. et al. 2004. Technical report: LANDIS-II double exponential seed dispersal algorithm. Univ. of Wisconsin-Madison, WI, <[www.landis-ii.org/documentation](http://www.landis-ii.org/documentation)>.

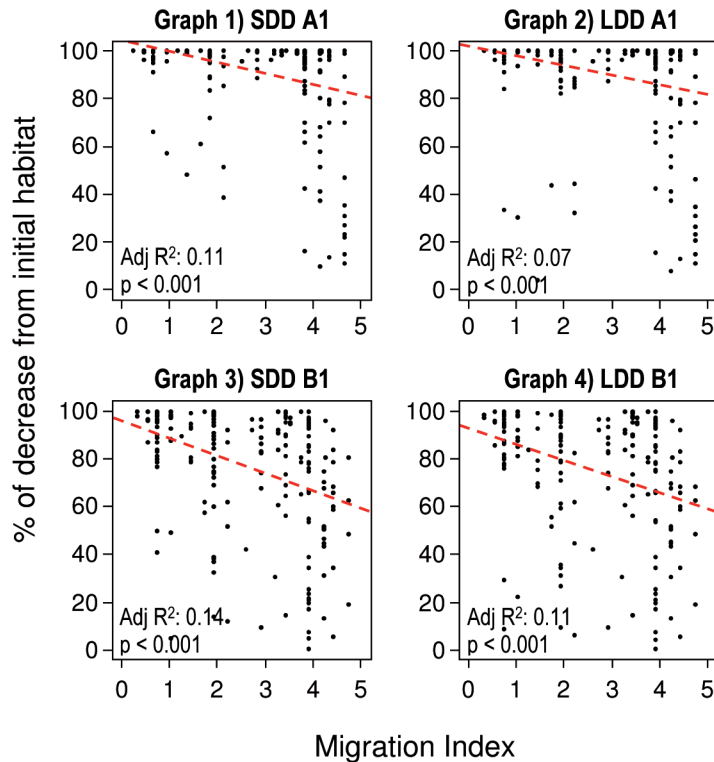
Appendix S5. Boxplots of 10-fold cross-validated AUC values for GLM, GAM, GBM and RF models. Wilcoxon matched pair signed-rank test showed that AUC values are significantly higher for GLM (p values < 0.001) when compared to GAM, GBM and RF. The line across the box indicates the median, box boundaries show the interquartile range and whiskers extend up to 1.5 times the interquartile range. Horizontal dashed lines indicate whiskers position of GLM model.



Appendix S6. Adjusted explained deviance (Adj. R<sup>2</sup>) and regression slope p-value for regressions of decrease in predicted distribution by 2100 vs a) Migration index and b) Elevation index. Only species with decreasing predicted distribution were taken into account (the number of species considered is given in the last column of each table). Examples of regression graphs for SDD and LDD simulations under A1 (most extreme) and B1 (least extreme) climate change scenario are given under each table. The yellow coloured rows indicate that these regressions are illustrated by a graphic (below) and the superscript indicates the precise graph the regression refers to. ND = no dispersal, SDD = short distance dispersal, LDD = long-distance dispersal, UD = unlimited dispersal.

a) Decrease in predicted distribution by 2100 vs migration index.

Climate change scenario	Dispersal scenario	Adj. R <sup>2</sup>	Regression slope	Regression slope p-value	No. of species considered
A1	ND	0.017	-2.2	0.0157 *	286
	SDD <sup>Graph1</sup>	0.107	-4.6	6.2 · 10 <sup>-8</sup> ***	252
	LDD <sup>Graph2</sup>	0.070	-4.0	1.2 · 10 <sup>-5</sup> ***	251
	UD	0.056	-3.7	0.0001 ***	244
A2	ND	0.033	-3.1	0.0012 **	286
	SDD	0.051	-3.9	0.0002 ***	238
	LDD	0.088	-4.4	2.5 · 10 <sup>-6</sup> ***	231
	UD	0.038	-2.9	0.0019 **	223
B1	ND	0.069	-5.6	3.7 · 10 <sup>-6</sup> ***	286
	SDD <sup>Graph3</sup>	0.138	-7.3	1.7 · 10 <sup>-8</sup> ***	210
	LDD <sup>Graph4</sup>	0.112	-6.7	4.5 · 10 <sup>-7</sup> ***	208
	UD	0.046	-4.4	0.0014 **	197
B2	ND	0.063	-4.9	1.1 · 10 <sup>-5</sup> ***	286
	SDD	0.119	-7.1	8.5 · 10 <sup>-8</sup> ***	221
	LDD	0.098	-6.4	1.3 · 10 <sup>-6</sup> ***	218
	UD	0.031	-3.9	0.00582 **	209





b) Decrease in predicted distribution by 2100 vs elevation index.

Climate change scenario	Dispersal scenario	Adj. R <sup>2</sup>	Regression slope	Regression slope p-value	No. of species considered
A1	ND	0.093	10.3	9.091e-08	286
	SDD <sup>Graph5</sup>	0.155	12.6	5.5 · 10 <sup>-11</sup> ***	252
	LDD <sup>Graph6</sup>	0.17	14.3	6.1 · 10 <sup>-12</sup> ***	251
A2	UD	0.157	14.2	8.4 · 10 <sup>-11</sup> ***	244
	ND	0.128	13.2	2.6 · 10 <sup>-10</sup> ***	286
	SDD	0.243	18.2	3.9 · 10 <sup>-16</sup> ***	238
	LDD	0.255	16.6	2.2 · 10 <sup>-16</sup> ***	231
B1	UD	0.220	15.5	7.2 · 10 <sup>-14</sup> ***	223
	ND	0.247	22.7	2.2 · 10 <sup>-16</sup> ***	286
	SDD <sup>Graph7</sup>	0.342	26.5	2.2 · 10 <sup>-16</sup> ***	210
	LDD <sup>Graph8</sup>	0.386	28.9	2.2 · 10 <sup>-16</sup> ***	208
B2	UD	0.474	33.5	2.2 · 10 <sup>-16</sup> ***	197
	ND	0.221	20.1	2.2 · 10 <sup>-16</sup> ***	286
	SDD	0.399	28.8	2.2 · 10 <sup>-16</sup> ***	221
	LDD	0.443	30.6	2.2 · 10 <sup>-16</sup> ***	218
	UD	0.444	32.5	2.2 · 10 <sup>-16</sup> ***	209

