

Acer campestre

Description of model and ensemble projections

The current distribution of *Acer campestre* is represented well in the model, despite the fact that the species is rather sparsely distributed over the range it covers in Switzerland. It occurs infrequently in forests of the Swiss Plateau, the lower and mid altitudes of the Jura range and the Northern Pre-Alps, but also in the interior Alpine valleys and in the Ticino. As a comparably light-demanding species with a small maximum size, it is mostly found on forest edges, on ridges, or on very steep and dry slopes.

Under projected climate change using the A1B scenario, almost all combinations of statistical and regional climate models predict a rapid spread of *A. campestre* throughout all low to mid altitudes in Switzerland, meaning that these regions represent soon climate conditions, which are favorable for *A. campestre*. The species is predicted to profit considerably from the warmer and slightly drier summer climates projected under this scenario.

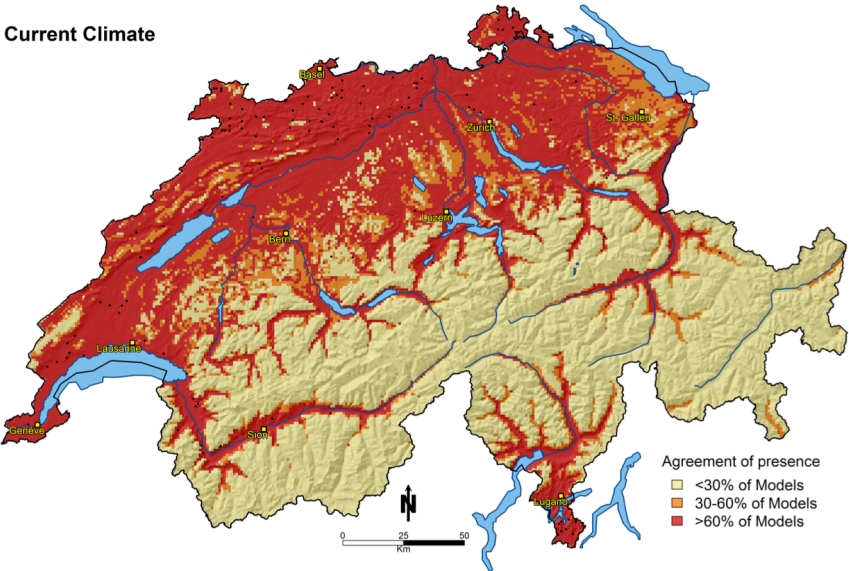


Figure 1. Current distribution (black dots) from the Swiss National Forest inventory (LFI 1) and simulated habitat suitability under current climate as calibrated from LFI forest inventory data of Switzerland.

Synthesis and Conclusions

The model fits the distribution of *Acer campestre* well, and can be considered a credible model to project the future habitat suitability of this species. The ensemble models project a 100% overlap between the current and the future range in Switzerland and still a very high overlap (78%) throughout Europe. This is a very high overlap, associated with a strong increase of the range in Switzerland (+58%), while in Europe the range size is largely maintained (-3%).

As a non-supported timber, it will not profit from management support, and may only be used as energy wood source, if at all. However, from its ecological characteristics, the species should not have problems to adapt to future climate conditions. It is very shade tolerant as a juvenile, and thus is not among the first to appear in a stand during succession. However, after initial fast growth it rather stops soon growing further, does not become too tall, and is soon outcompeted by late successional, seral species such as beech (*Fagus sylvatica*) or oaks (*Q. robur*), etc. The species plays an important role as ornamental tree, and is widely planted in gardens or hedges. It will continue to play this role well, and will often be seen in hedges, at forest edges and only marginally in denser forests. In oak forests of a warmer world, it may have some importance in the future.

Range change statistics		
	CH	Europe
Current range size [km²]	16'773	123'525
Future (2080) range size	26'596	120'410
Range Change 2080/2000 [%]	158.5%	96.7%
Overlap 2000/2080 [km²]	16'773	97'276
Overlap/current range [%]	100.0%	78.1%

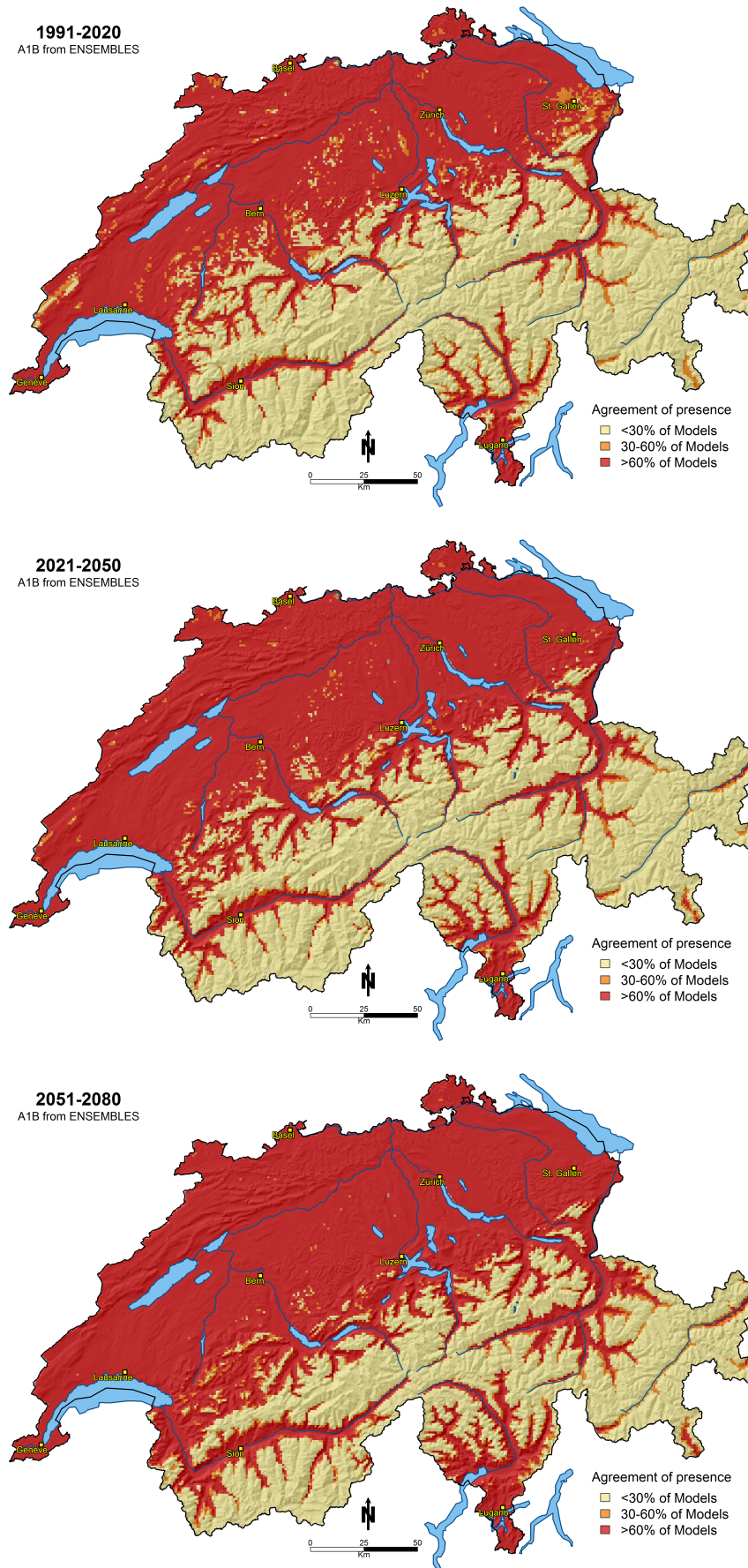


Figure 2: Ensemble of projected future ranges of suitable habitat as modeled from six RCMs and six statistical models. Light yellow colors indicate that all climate & statistical model combinations project absence of the species, while dark red colors indicate presence. Orange colors indicate uncertainty regarding habitat suitability.