

## 登山家動物たちの種子散布は植物が温暖から逃れるのに有効か？

# Do mountain-climbing mammals protect plants from global warming by their vertical seed dispersal?

\*直江 将司<sup>1</sup>、陀安 一郎<sup>2</sup>

\*Shoji NAOE<sup>1</sup>, Ichiro Tayasu<sup>2</sup>

1. 国立研究開発法人 森林研究・整備機構 森林総合研究所、2. 大学共同利用機関法人 人間文化研究機構 総合地球環境学研究所

1. Forestry and Forest Products Research Institute, Forest Research and Management Organization, 2. Research Institute for Humanity and Nature

Today, global warming is progressing rapidly, and attention is focused on how trees that make up the forest respond. The easiest and most powerful means for trees to escape from global warming is to move to colder areas, that is, higher altitude or latitude, by seed dispersal. Considering that the temperature drop with increasing altitude is one hundred to a thousand times larger than that of the equivalent latitudinal distance, vertical seed dispersal seems a key process for plant escape from warming temperatures. However, no study has evaluated vertical seed dispersal itself due to technical difficulty or high cost. By using negative correlation between altitudes and oxygen isotope ratio of seeds, we evaluated the vertical seed dispersal of summer-fruiting wild cherry and autumn-fruiting wild kiwi by mammals in central Japan. The results were contrasting: while seeds of cherry were dispersed toward mountain tops (by bear; mean +307.2, marten; +193.0 m), seeds of kiwifruit were dispersed toward the foot of mountains (by bear; -393.1, monkey; -98.5, raccoon dog; +4.5, marten; -226.9 m). These were probably because mammals followed plant phenology in temperate zone which proceeds from the foot to the top of mountains in spring to summer and from the top to the foot in autumn to winter. Downhill seed dispersal will likely lead to a serious population decrease of plants under global warming, because their performance is strongly reduced by novel competitive plants in the lower altitude environment. Considering that many of trees depend on animals and fruit in autumn to winter, forest composition in temperate zone might dramatically change under global warming due to biased vertical seed dispersal by animal.

キーワード：種子散布、温暖化、温帯林、哺乳類、サクラ、サルナシ

Keywords: seed dispersal, global warming, temperate forest, mammal, cherry, kiwi