Project update: May 2019

A previous study demonstrated that non-native ungulates disrupt a keystone interaction among hummingbird-mistletoe-marsupial. However, the indirect effect beyond the rupture of this interaction is still missing. To understand the threat of these invasive species on the whole community I carried out pollination and seed dispersal network studies. These networks are built by accumulating hours of observation on plant-animal interactions. Additionally, I used camera traps and tomahawk traps to build seed dispersal networks. I observed that the networks where more diverse and the number of pollinators and the number of interactions were higher in sites with presence of keystone interaction than sites invaded by the non-native ungulates. These results highlight the importance of conserving the interaction among hummingbird-mistletoe-marsupial and the need to create management plans to control non-native ungulates. Also, in presence of this keystone interaction I recorded the activity of mangangá (*Bombus dahlbomii*) (Video 1), a native bumblebee hardly to seen which is endangered according to IUCN criteria. I am still carrying out fieldwork to obtain more data on the seed dispersal network of the temperate forest of Patagonia. However, I have recorded many different animals eating fruits (Video 2), including the endemic marsupial, monito del monte, (*Dromiciops gliroides*) (Fig. 1 & Fig. 2).

Community scope

One of the great benefits of this grant was the opportunity of working with a diversity of stakeholders. During the fieldwork, I worked with 10 undergraduate students and graduate of different careers and places of Argentina and USA. They learned about field techniques, sampling protocols and logistic organization and I learned how to lead a group, in all aspects that this entails. Also, I collaborate actively with park rangers. This was very exciting because they never saw the endemic marsupial (*D. gliroides*), even though they do a lot of outreach work about this species. I also have participated in a workshop for children from 5 to 15 years old, where I taught them about my work and the importance of conserving native species and their interactions using didactic games (Fig. 3).

Project next steps

In the next month I will finish fieldwork. Once the data has been collecting, I will analyse the data and will work on two manuscripts to share the results with the research community. Additionally, I am planning on giving a talk for the local community. Finally, I am going to repeat the activity with the children, but this time, I am planning on giving talks at different elementary and high schools in Bariloche.

Video 1. A native bumblebee (mangangá, *Bombus dahlbomii*) pollinating flowers of vicia (*Vicia nigricans*). Link: https://youtu.be/d9dKi4Shde4

Video 2. Carpintero gigante *(Campephilus magellanicus)* eating fruits of maqui *(Aristotelia chilensis).* Link: https://youtu.be/BbimcbzKq78

Figure 1. Individual of D. gliroides captured during fieldwork.

Figure 2. Mistletoe seeds (Tristerix corymbosus) dispersed by D. gliroides.

Figure 3. Children learning and enjoying the didactic games on workshop for children.