

## **Project Update: December 2012**

My PhD research is split into three chapters. Currently I am collecting data for my first chapter which discusses how seasonal changes in grass quality influences oribi food selection and ultimately how this allows oribi to survive the winter months when food quality is at its lowest. Winter data collection ran from June through to the end of August 2012. I am currently still collecting summer foraging data which started in October 2012 and will end in February 2013. I have included a transitional period (October to November) between winter and summer as this period could be very interesting as new plant species emerge after the first spring rains and spring burns. This time period could also prove to be very important for oribi as they try and meet their energetic requirements after winter when food quality is low.

### Winter findings:

- During winter, oribi fed on 23 different plant species. For each month I have noted the key species and the dietary contribution of each grass species. I have also collected grass samples which I will use for nutrient analyses. This will give me background information on how grass quality decreases throughout the season. Ultimately, this information will give insight into why oribi utilise different grass species throughout winter. I have also collected bite rate, bite mass and intake rate data which I will compare across months.
- During August, there is a noticeable shift in the grass species that oribi consumed. The reason for this is that oribi congregated on the wide firebreaks and in the vleis (marsh-like area) of unburnt grasslands. It is interesting to note that the vleis areas attracted oribi even though the majority of the grass was the same grass greenness category as the surrounding unburnt grass. Nutrient analysis of the grass will show if these species have a higher nutrient quality than surrounding areas.
- I have collected data on both burnt and unburnt areas during the same time frame which allows me to compare the intake rate, bite mass and nutrient quality of these areas. From this, I can determine whether oribi are meeting their daily energetic requirements feeding on the brown unburnt grass. If oribi are, then they are just taking advantage of the green grass. However, if oribi are not meeting their daily energetic requirements on the unburnt areas then this will show the importance of these firebreaks. These large internal firebreaks are burned at the end of July which considerably shortens the time that oribi would have to feed in the unburnt grasslands. My data show that oribi are able to maintain a much higher intake rate on firebreaks compared to unburnt areas due to the shortness of the grass. This information will be particularly useful as a number of cattle farms that have oribi do not burn their grasslands and firebreaks may be necessary for the survival of oribi.
- Although firebreaks may be important for oribi survival, there are a few problems that need to be addressed. Firebreaks attract a large number of oribi that feed in close proximity to each other which results in an increased number of aggressive interactions between males. Although I am not directly addressing this problem, I will be including it in my conclusions and recommendations for management chapter. A possible solution would be to ensure that there are adequate firebreaks in all male oribi territories. This will prevent oribi from having to move from one territory to the next to feed. Another problem created by firebreaks is the reduction

of grass that oribi require for cover. The average grass height in winter that oribi hide in is 69.6 cm. Current management policies are to burn very large firebreaks to help provide green flushes for oribi. The problem with burning large firebreaks is that it removes the long grass that oribi hide in. As a result, I have observed oribi having to lie in very short grass where they are clearly visible. Oribi's defence against predation is to hide in long grass. If no long grass is present, this will greatly increase their predation risk. A solution would be to create a patch-mosaic of burnt areas rather than a large fire break. This would provide oribi with both habitat requirements: long and short grass. Again, this will be discussed in the management recommendation chapter.

#### Summer findings so far:

- After the first spring rains and burns, oribi fed heavily on sprouting forbs. My initial hypothesis was that oribi would increase their diet breadth in winter by utilising forbs. However, during winter, the majority of the forbs were dead. After the spring rains, forbs were abundant and the oribi utilised them heavily. This may be one of the mechanisms that oribi use to meet their energetic requirements after winter. Forb species are now some the key species for each month.
- As the summer months progress, the number of species that oribi utilize has decreased. This meets my initial hypothesis as oribi can now focus on the highest quality food that is available.
- Summer and winter bite rates are very similar, however, in summer, the bite masses are larger. This is due to the grass having a higher leaf production of soft palatable grass compared to winter. As a result, oribi are able to maintain a higher intake rate than in winter.

Once my data collection is finished, I will be able to determine the nutrient levels of the collected grass samples which will allow me to determine the nutritional intake rate of oribi throughout the year. This will also allow me to determine the mechanisms that oribi use to survive and recover after the winter months. For example, my data already show that they increase their bite mass which results in a higher intake rate (Intake rate = bite rate x bite mass). This research forms the baseline for my PhD and is extremely important as it is not possible to conserve a species when the requirements for its survival are unknown. I have met with my coordinator at Ezemvelo KZN Wildlife and the Oribi Working Group and my research has already brought new ideas which will benefit current management policies for oribi.

