



**Diet separation between low-density and high-density grazers: sable antelope, zebra and buffalo**

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# Introduction

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- Sable: low density and declining species
- Zebra and buffalo: high density and increasing
- Inverse trend between ecologically similar species might indicate competition for resources
- ➔ Limited data on how low density grazers partition food resources with potentially competing species
- ➔ Effect of season on the interaction between low and high density grazers on the use of food resources has not been documented



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## Objectives:

- To compare grass species selection and contribution of grass species to the diet of sable, buffalo and zebra during the dry season
- To assess seasonal changes in the degree of overlap for food



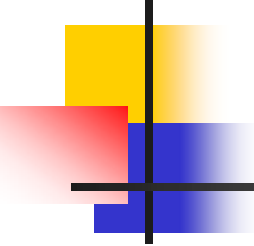
# Methods

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- Study area: Punda Maria section of the KNP
- Study duration: June – November 2006

## Data collection:

- Individuals of the three herbivore species were fitted with GPS-GSM collars
- Herds were located through GPS tracking
- Foraging areas were identified from evidence of fresh feeding

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- Nine 0.5 m x 0.5 m quadrats were placed within each foraging area
  - Grazed and ungrazed grass species were identified within each quadrat
  - The number of fresh bites taken on each grass species was counted



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## Data analysis

- Relative availability
- Acceptability index
- Dietary contribution
- Diet overlap index using Pianka's Niche Overlap formula:

$$O_{jk} = \frac{\sum U_{ij} * U_{ik}}{\sqrt{\sum U_{ij}^2 * \sum U_{ik}^2}}$$

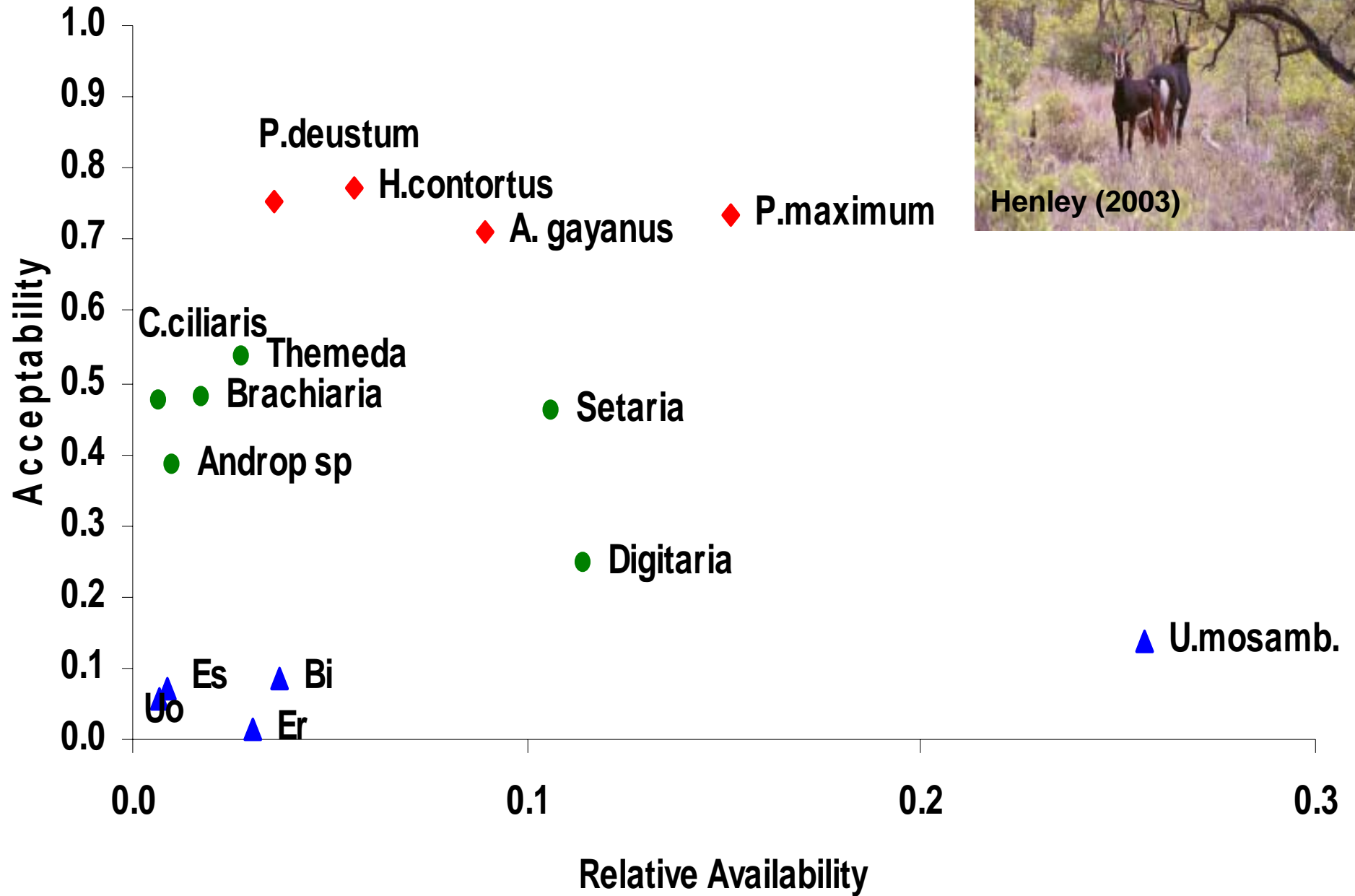
# Results



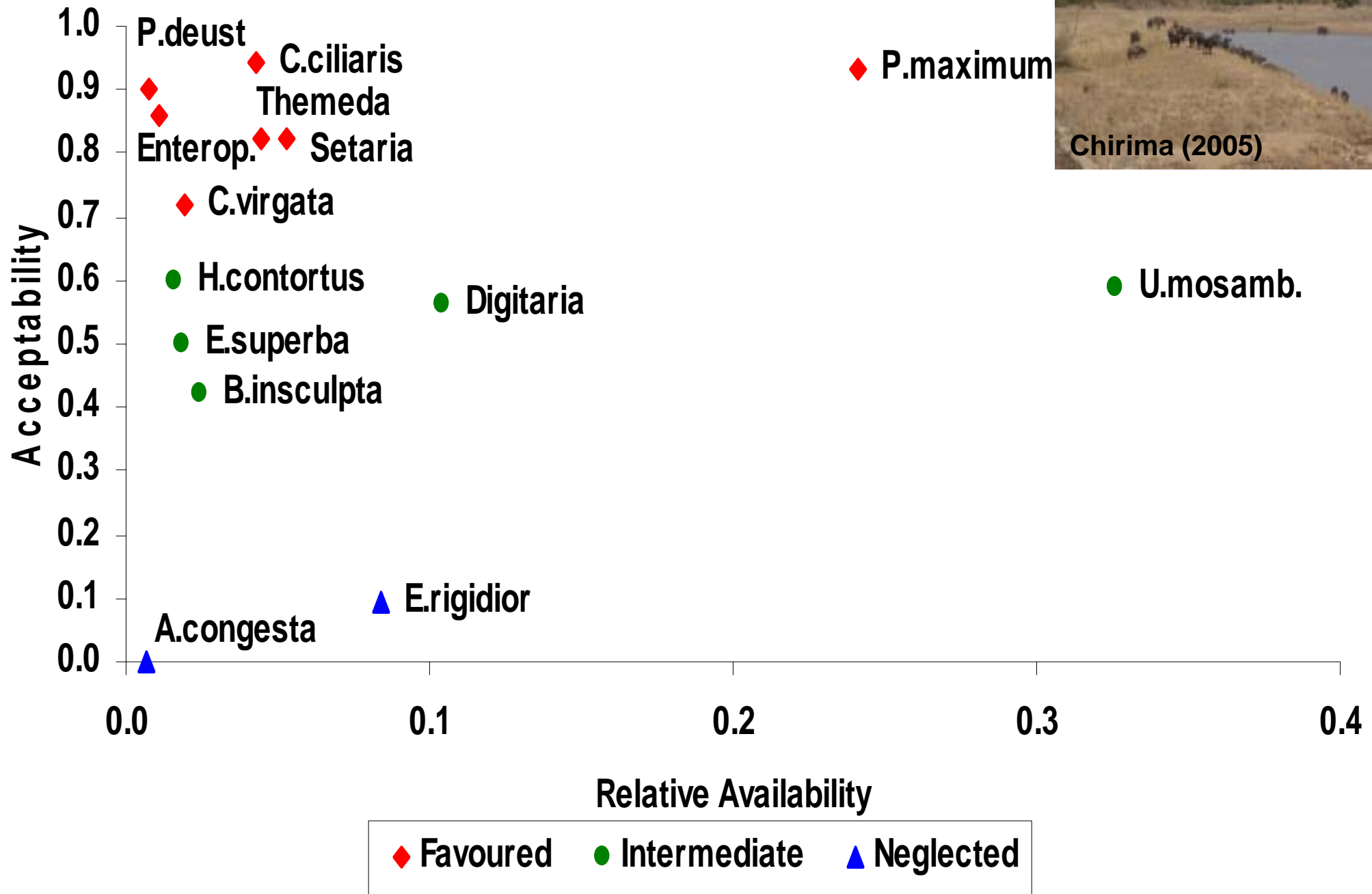
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**Separation or overlap in grass species selection**

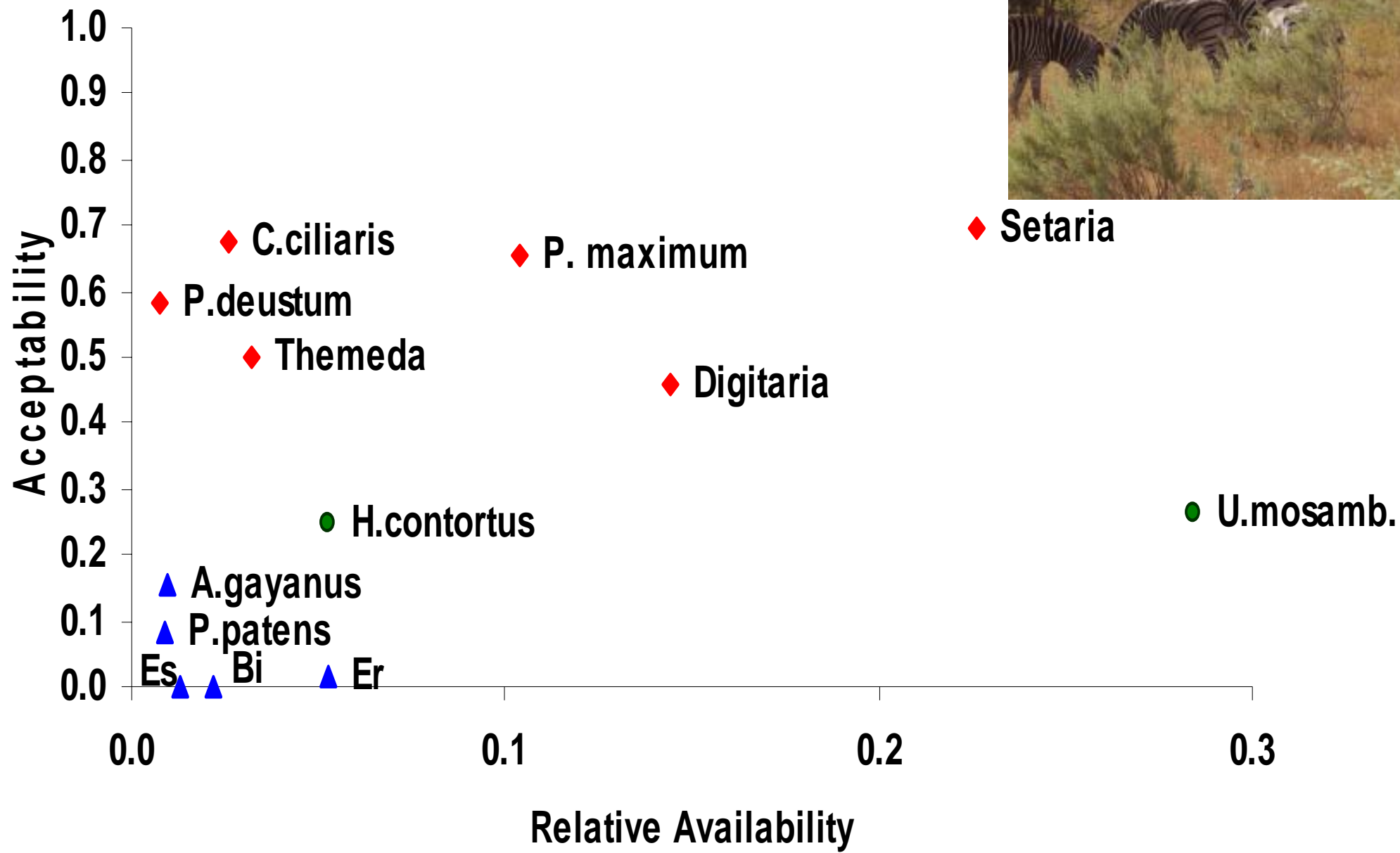
a) SABLE



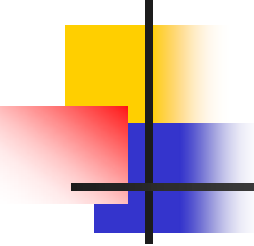
## b) BUFFALO



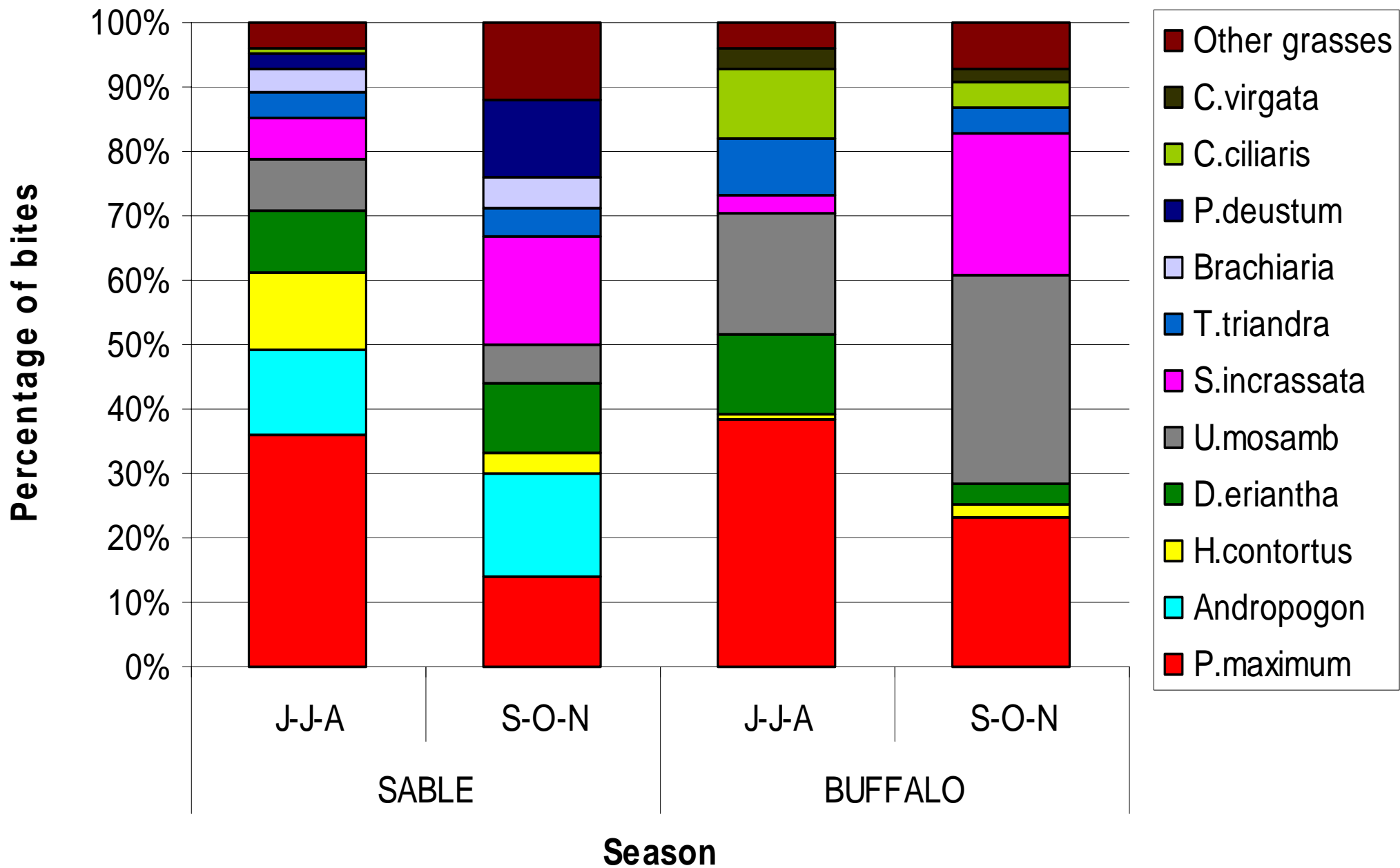
### c) ZEBRA

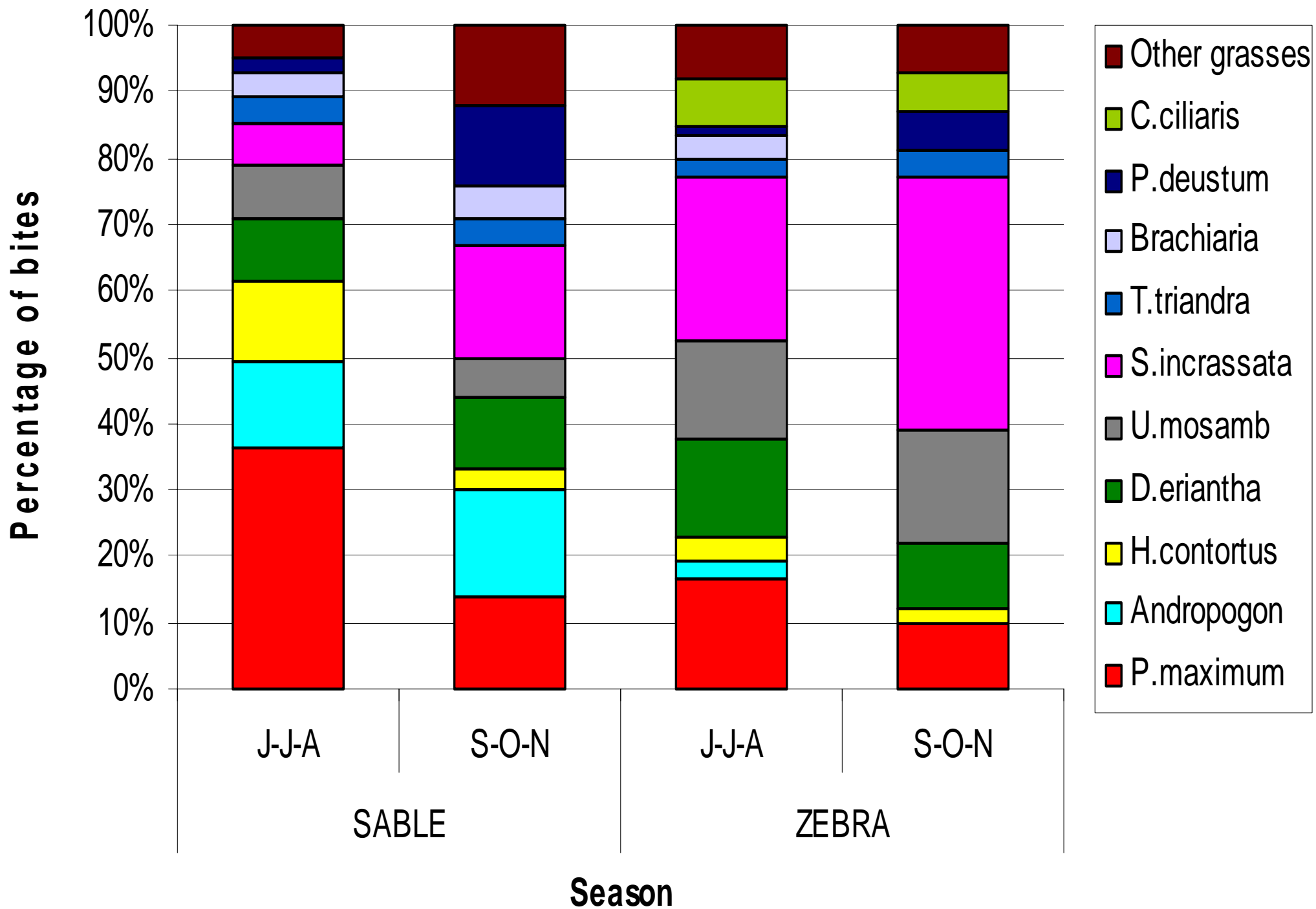


◆ Favoured ● Intermediate ▲ Neglected

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- The acceptability of common grass species was lower for sable than for buffalo and zebra
  - Overlap on *P. maximum* and *P. deustum*
  - Separation on *A. gayanus* and *H. contortus*
  - *C. ciliaris*, *S. incrassata* and *T. triandra* were of intermediate acceptability by sable but highly accepted by buffalo and zebra

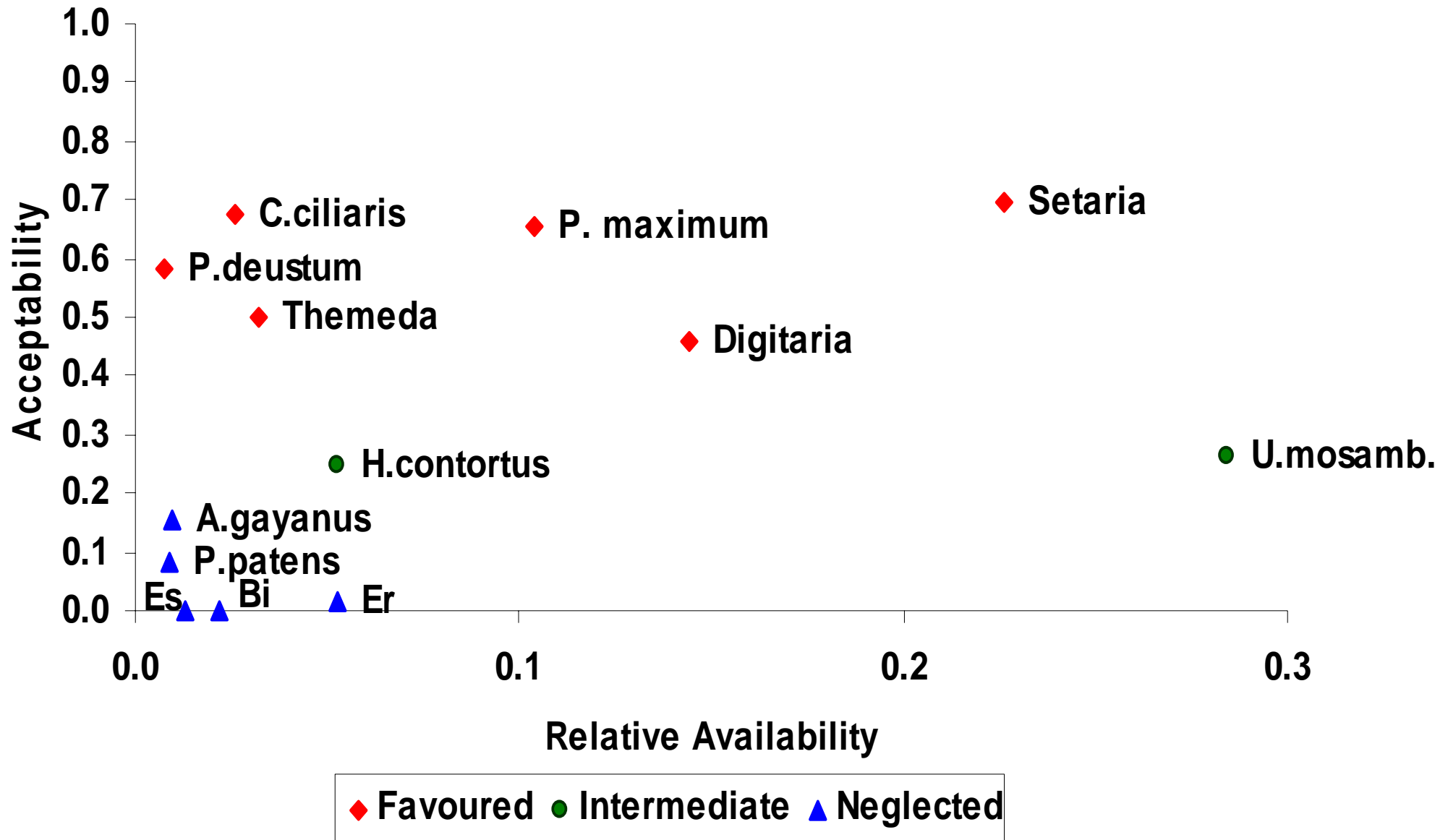
# Separation and overlap in diet composition

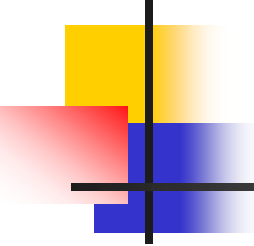




# Diet overlap index

c) ZEBRA



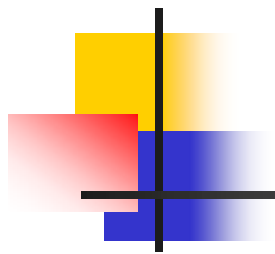
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- Overlap on the dependence on *P. maximum* early in the season and on *S. incrassata* at the end of the dry season
  - Separation: Sable (*H. contortus* and *A. gayanus*)  
Buffalo and zebra (*U. mosambicensis*)
  - Sable and buffalo overlapped on principal resources and separated on secondary resources
  - Sable and zebra overlapped less on principal resources but more on secondary resources



# Conclusion

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- Sable depend on a narrower range of grass species than buffalo and zebra
- The three herbivores partially share preference in grass species
- Competition for food might arise, particularly during dry years
- Sable dependency on different alternative resources than buffalo and zebra might be the mechanism allowing coexistence between the three species



**THANK YOU!**