

DESIGNING ANALYTICAL SOFTWARE FOR GLOBAL DATA SHARING OF RHINOCEROS BROWSE AND DIET INFORMATION

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As part of an ongoing effort to develop information resources and tools integrating valuable global research, we present a database and software model that integrates feeding habits, browse usage information, nutrient composition of native and substitute foods, and captive diet records for rhinoceros species. Screen displays and output reports include: Browsers/Forages Offered, Browse/Forage Nutrient Composition, Diets Fed by Zoological Facility, Nutrient Recommendations, and Nutrient Comparisons. Nutrition-based information for captive wild animals is often difficult to locate, and more so to collate for dietary evaluation. Presenting this collection of data in a simplified, concise format to researchers and zoological staff is challenging. ZootritionTM software has pioneered a format for data collection and presentation, in an attempt to improve diet management and evaluation. Using ZootritionTM as a technical foundation, we continue to further develop simplified means to aid researchers in utilizing this data in a proactive and beneficial way. The Rhinoceros Taxon Advisory Group provides an opportunity to develop this prototype. With appropriate database modifications, similar information can be readily compiled through collaborative efforts with other TAG and SSP priority species. This software model can be utilized to collate and disseminate species-specific browse, diet, and nutrient information. It can also be used to compare dietary ingredients and nutrient content of diets submitted from AZA and other global-based zoological institutions. These databases can then be used to compare feeds on a local or regional basis. Maximizing input into the database can only serve to improve animal care within zoological institutions and native habitats.

Examples

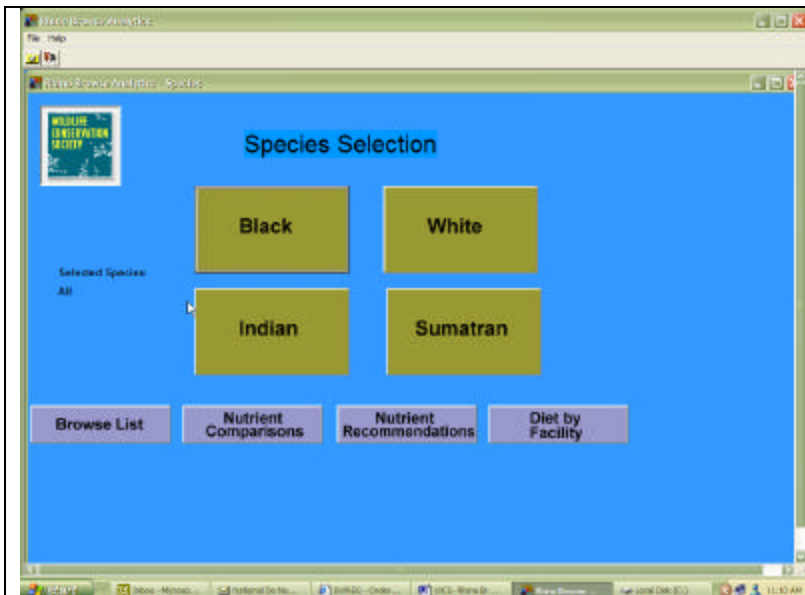
Below are screen displays from the Rhino Browse facility. They show a simplified interface that directs the user intuitively to information within the database. The user is prompted to view information by animal species, to note the feeds associated with those species, to develop comparisons between diets and nutrient requirements or among appropriate feeds, or to view diets associated with specific animals in specific institutions. The latter is information that will be acquired and developed by the WCS in cooperation with AZA member facilities and other animal locations, through collaboration with an American Association of Zoo Keepers (AAZK) working group.

EXAMPLE – MAIN SCREEN



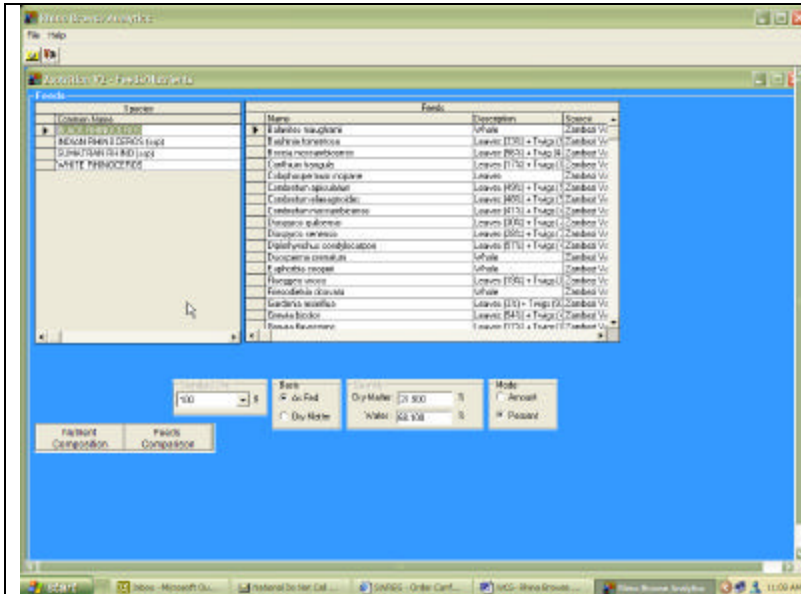
On the main screen, the user may select browse information by either animal species, by the feeds associated with those species, by a comparison of nutrients contained in feeds, by recommended diets, or by species' diets used at individual facilities.

EXAMPLE – ANIMAL SPECIES SELECTION SCREEN



Here, the user may select an individual animal species or by default, browse information will be displayed for all available species. The gray selection boxes below Species Selection will provide on-screen and printable reports or additional research capabilities.

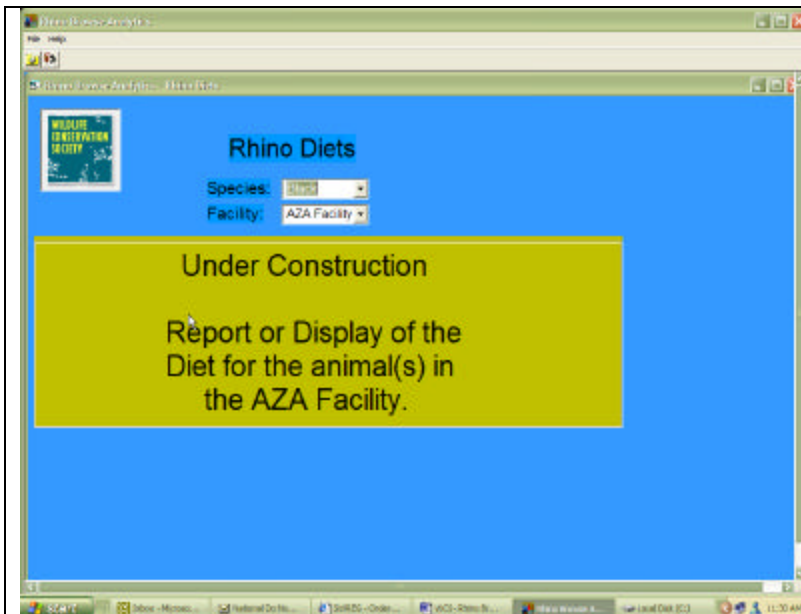
EXAMPLE – FEEDS SCREEN



The Feeds feature also lists browses (either native or cultivated) and, to a limited extent, other dietary ingredients known to be consumed by the selected rhinoceros species.

Full nutrient content for each item can be displayed and printed. There will almost certainly be repetition of feed items between species.

EXAMPLE – DIET BY FACILITY SCREEN



Animal holding institutions will share diet information through a survey currently being compiled. This feature allows display of diets being fed locally.

Member facilities may share diets anonymously as well, which furthers information sharing without compromising proprietary information.

Conclusion

The Rhinoceros Browse Analytical Software offers a focused capability to capture, analyze and display browse and diet information for specific rhinoceros species. Clearly, the product offers an opportunity to AZA institutions as well as to other animal research facilities to share further information on rhinoceros diets and nutrition. As such, it represents a model system that can be more broadly applied to other managed populations regionally or globally.