Dedication

To those give me ............. Name and meaning
    Father and mother
To whom lights of life............ My sisters and brothers
To those that closed to me .......... My colleagues and friends
    For all those
I gift the research and simple effort

Nancy
ACKNOWLEDGMENT

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ABSTRACT

The study was conducted in ELbaja area west of ELDueim in the White Nile State. The main objective of this study was to investigate the browsing as related to rangelands management aspects in the area. Three plots representing the main browse pattern were selected, each of (250m×250m), within each of these three plots, three circular samples (0.1ha each) were marked to determine tree densities and browse availability. In each plot two
transects of 100m each were located to measure vegetation attributes mainly tree density, browsing level, diameter at browsing point, available twigs numbers and available browse productivity. Beside this the quantative and qualitative assessment of herbaceous layer such as composition, frequency, density, biomass and productivity were assessed. Socio- economic investigation was conducted to collect both qualitative and quantative information. Two questionnaires were designed for nomads and settled groups. The aim was to collect information in respect to pattern of browse resource used and the associated problems. The study concluded that, *Acacia tortilis* was the most preferred browse tree but it is decreasing since its density as mature trees was higher than its natural regeneration. While, total density of natural regeneration of trees in general was reasonable compared with total trees density in the study area, nearly (2: 1) which could be accepted as a quantity to decrease along the natural selection process.

The cover percentage under trees was dominated by *Eragrostis spp*, while the herbaceous biomass production is considered reliable (0.24 ton/ha) compared with open rangelands (0.5 ton/ha). Grazing browsing ratio found to be (1:2) which reflected good tree coverage, as this is affected by the percentage of tree shade on the herbaceous layer.

The water sources were the main factor among pastoralist to determine the utilization of browse resources during the summer period. This period considered the best browse seasons because the fodder trees was available for livestock in villages while herbaceous layer disappear.

The *Acacia tortilis* is endangered by excessive cutting that are practiced by the people in the area.

The study recommended that there is great importance to keep balance for the natural regeneration, according to the current status and need to sustain
the *Acacia tortilis* trees because it is a preferred and important browse tree in the area. Conservation and protection of the ground cover is required because it represent the source of fodder and keep the browse graze ratio within ecological stability. The study proved that the social control is still effective as related to natural resources protection and should be further supported for future conservation.

Extension is required in the area to increase the awareness among the people towards cutting of trees and to involve them in the management process.
المجموعات الرعوية للرجل والمستقرين لمعرفة أنماط واستغلال موارد الرعي الشجري والمشاكل المتعلقة بها.

من أهداف الدراسة أن شجرة السيال من أكثر الأشجار المفضلة للرعي الشجري، لكنها متناقصة وذلك لأن ثالث الأشجار أعلى من النموات الطبيعية. أما ثالث الأشجار بصورة عامة فهي جيدة إذا ما قدرت بنسبة النمو الطبيعي للأشجار (2:1) مما يعني فرصة تناقصها مقبولة خلال عمليات الاختيار الطبيعي للأشجار.

نتيجة الغطاء النباتي تحت الأشجار يوجد نبات البنين بينما الانتاجية النباتية تعتبر مناسبة (0.24 طن/ هكتار) عند مقارنتها مع المراعي المفتوحة (0.5 طن/ هكتار). وجدت الدراسة أن نسبة العلف الشجري للعشبي (2:1) وهذا يعني أن هناك نسبة غطاء شجري مناسبة خصوصاً وأن الانتاج العشبي في المراعي الشجري تتحكم نسبة ظل الأشجار.

تُعتبر مصادر المياه من العوامل الطبيعية والمحدودة وسط الرعاة واستخدام موارد الرعي الشجري أثناء فترة الصيف لأنها تعتبر من أفضل مواسم الرعي الشجري التي توفر العلف بصورة متاحة للحيوانات خصوصاً للمستقرين بالقرى.

شجرة السيال من الأشجار المهددة لتعرضها للقطع المستمر من قبل السكان المحليين.

أوصت الدراسة أن هناك ضرورة للمحافظة على النموات الطبيعية لأشجار السيال حسب الوضع الحالي لها بغرض الاستدامة لأنها المفضلة للحيوانات ذات أهمية للرعي الشجري في المنطقة بالإضافة إلى ضرورة المحافظة والاستفادة للغطاء النباتي لأنها مصدر للعلف ويحافظ على معدل الرعي الشجري من أجل صيانة واستقرار البيئة. كما وجدت الدراسة أن حماية النظام المحلي للأشجار ما زال له تأثير وتوصي بهدف هذا الإنجاز لخدمة المحافظة على الموارد وإدارة المراعى بصورة مستدامة. الخدمات الإرشادية المطلوبة بالمنطقة لزيادة الوعي بالنسبة للسكان اتجاه التعامل مع الأشجار، واستيعابهم في عملية الإدارة.