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Research Article

Food Plants and Feeding Behaviour of Lowland Anoa (*Bubalus depressicornis* Smith, 1827) in Tanjung Peropa Wildlife Reserve, Southeast Sulawesi

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ABSTRACT
Lowland anoa is endemic to Sulawesi, inhabiting the tropical rain forests on the island. The animal's food plants included leaves, shoots and growing tips of branches, young twigs, and fallen fruit of many plant species. This study aimed to reveal the food plants and feeding behaviour of lowland anoa in their natural habitat in Tanjung Peropa Wildlife Reserve, Southeast Sulawesi. The potential food plants and faecal samples of anoa were collected, and epidermis left in the faecal samples was analysed and identified microscopically. Based on the characteristics of the plants' epidermis, the plant species could be identified. A total of 55 species of food plants was identified in the faecal samples of anoa. The chief food items of the anoa were dicotyledonous plants representing 84 %, monocots 11 %, and ferns 5 %. Parts of the food plants eaten by the animals were mainly leaves and stems constituted 78 %, while fruit composed 22 % of the diet. Intact fruit seeds found in the faecal samples suggest that anoas play significant roles as seed dispersers, and propagate many species of fruit trees in the tropical rain forest of Sulawesi.

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INTRODUCTION

Lowland anoa (*Bubalus depressicornis*) is endemic to Sulawesi, Indonesia. This species is classified as an endangered species (IUCN 2025), listed on Appendix I of CITES (UNEP-WCMC 2021), and is protected by Indonesian law (Indonesian Ministry of Forestry 2018). The lowland anoa is the smallest of the world's living buffaloes, yet the biggest of Sulawesi's forest ungulates; body weight is 80-100 kg, and shoulder height is 80-100 cm (Mustari 2019). Data on food plants and feeding behaviour of anoa in their natural habitats are limited due to its secretive nature, inhabiting the most remote tropical rain forests on Sulawesi. The habitat of lowland anoa includes beach, lowland, and mountain forests up to 3000 masl (Mustari 2019). Lowland anoa was frequently observed visiting mangrove forests, licking soils, and foraging on leaves and fallen fruit of mangrove trees during low tides (Mustari 2019). Qualitative descriptions of the diet of anoa based on browsing signs left by the animals in the natural habitats have been reported by field biologists (Arini & Wahyuni 2016; Tangkoro et al. 2018; Mustari 2019; Aziz et al. 2023).

Parts of plants eaten by anoa include leaves, fruit, flowers, shoots, and stems (Ranuntu & Mallombasang 2015; Mustari 2019). Food plants of anoa include many species of woody plants, herbs, shrubs, aquatic plants, grasses, ferns, and lianas (Mustari 2019). In captivity, dietary ecology has been studied to reveal feeding behaviour and nutritional content of anoa's feed (Arini & Kafiar 2014; Mustari et al. 2015; Rusiyantono et al. 2019). Every plant species has unique cuticle characteristics, and most plant cuticle is not completely digested in the ruminant digestive processes, allowing food plants to be identified microscopically in faecal samples of grazing or browsing herbivores (Ginantra et al. 2016; Adinda et al. 2023). This study is the first to describe food plants of anoa using epidermal fragments in the faecal samples. This study aimed to identify and reveal food plants and feeding behaviour of anoa in their natural habitats. Relative proportions of the food plants were assessed based on their fragments. The results of this study will contribute to the better understanding of the diets of anoas in their natural habitats. Information on natural diets serves as a reference for providing feed in anoa ex-situ conservation facilities.

MATERIALS AND METHODS

This study was conducted in Kalobo Forest of Tanjung Peropa Wildlife Reserve in Southeast Sulawesi. The conservation forest covers an area of 389.27 km^2, extending from 0 m to 900 m elevation (Figure 1). Food plants that were potentially eaten by anoa were collected, including food plants that showed signs of being browsed and food plants that were directly observed being eaten by the animals. The browsing signs of the lowland anoa could be determined by identifying the footprints of the animals nearby or under the food plants. The only sympatric species in the study sites were the sulawesi warty pig (*Sus celebensis*) and the babirusa (*Babyrousa celebensis*), both of which have distinct footprints and browsing signs.

The food plants browsed by the animals were classified as potential food plants eaten by the animals, while the food plants identified in the faecal samples were the actual food plants consumed by the lowland anoa. Food plants eaten by anoa were identified using microscopic epidermal fragments from the faecal samples (Figure 2). Five fresh faecal samples (50 g each) of anoa were randomly collected every month during 2001 and 2002. A total of 61 faecal samples were collected during the rainy (32 samples) and the dry (29 samples) seasons. In the study site at the south-eastern tip of the mainland of Sulawesi, the rainy season occurred from January to June, and the dry season

was from July to December. The faecal samples were preserved in 70 % ethanol.

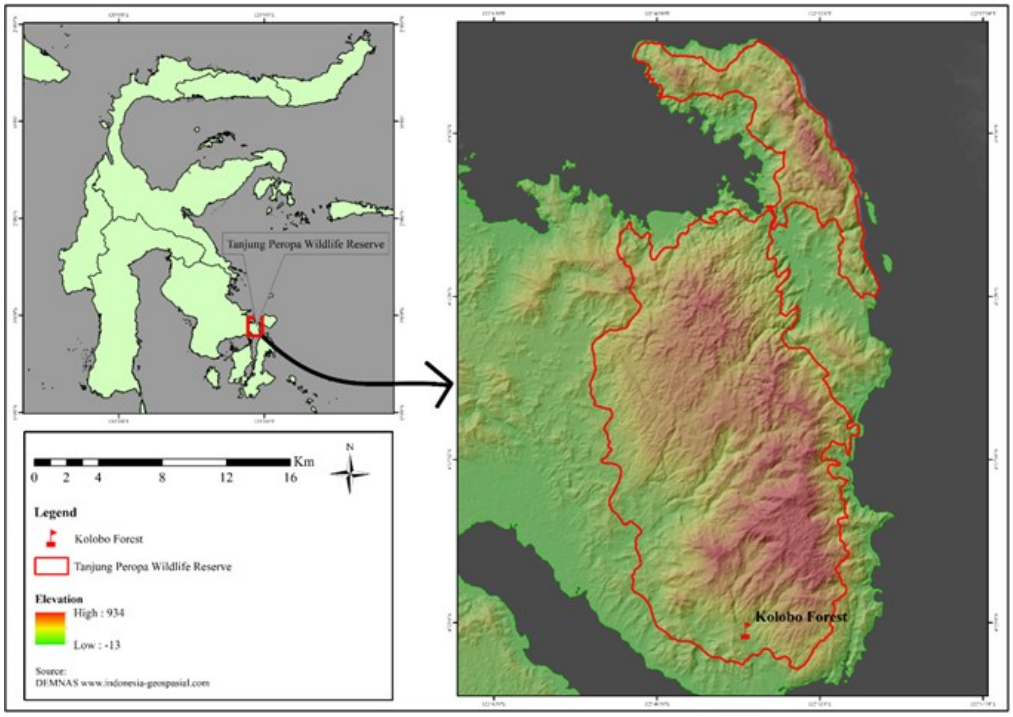

Figure 1. Tanjung Peropa Wildlife Reserve at the southeastern tip of the mainland of Sulawesi.

Figure 2. Lowland anoa (*Bubalus depressicornis*) and its faeces (Photo: Abdul Haris Mustari).

Reference slides

Food plants potentially eaten by the lowland anoa were collected, and the botanical names were confirmed at the Herbarium Bogoriense of the Indonesian Institute of Science (LIPI). Preparation of the reference slides followed the procedures described by (Stewart 1965, 1967; Jarman & Phillips 1989). The materials (leaves, stems, flowers, seeds, and fruit bark) were cut into 5 mm lengths and put into a conical flask containing 10 % nitric acid. The flask containing the plant part was heated intermittently over a Bunsen burner for about five minutes or until the epidermis separated from underlying tissue. When the epidermis separated, water was added to the flask to prevent further disintegration; then the contents of the flask were transferred to a beaker where the epidermal fragments usually floated to the surface. Subsequently, the epidermal fragments were picked up with a small brush and put into a small quantity of safranin stain in a watch glass. After a few minutes, the fragments were removed to a dilute solution of glycerine, which removed excess stain. Finally, the fragments were mounted in glycerine jelly under a 3.8

x 1.9 cm cover slide, and were then ready to be used a reference slide in identifying the food plants' fragments in the faeces of anoa.

Faeces slides

Preparation of the faecal slides followed the procedures described by (Stewart 1965, 1967; Jarman & Phillips 1989). Faecal samples that had been preserved in 70 % ethanol were placed onto a slide using a Pasteur pipette. Sub-samples of approximately 10 g were soaked with water to soften for several hours before being mounted on the slides. The sub-samples were mounted with glycerine jelly under a 3.8 x 1.9 cm cover slide. The faecal slides were examined with a binocular light-transmission microscope under x10 to x100 magnification (Jarman & Phillips 1989). Plant epidermal fragments recorded in the faecal slides were firstly categorised into monocots (grasses, sedges, bamboos) and dicots (herbs, lianas, and woody plants), and then into the parts of the plants: leaves, fruit, seed, stem and woody material (Figure 4). Characteristics of the plant epidermis were first differentiated and classified as monocots and dicots, then species were identified. The species represented by each fragment was recognised, where possible, by characteristics of the epidermis as found in reference slides. The relative proportions of species or their parts in the diet were taken to be represented by the relative amounts of epidermal area that they contributed to the total area of epidermis recognised. Based on these proportions, the percentage of epidermal cover formed by each plant species' fragments could be determined (Jarman & Phillips 1989).

RESULTS AND DISCUSSION

Food plants

Observation of the feeding sites of the animals showed that food plants of anoa included monocots (grasses, sedges, and young leaves and new sprouts of bamboos), dicots (herbs, lianas, and fruit of dicots), and ferns. The food plants that were frequently browsed by anoa included balandete (*Merremia peltata*), wehuko (*Ficus variegata*), kaleuwi (*Hypobathrum microcarpum*), bamboos (*Bambusa* spp.), tawa huko (*Gnetum gnemon*), we wai (*Flagellaria indica*), tokoalinda (*Elatostema rostratum*), and puta (*Barringtonia racemosa*).

The anoa also consumed fruit of many species, particularly figs (*Ficus* spp.), dongi (*Dillenia ochreata*), konduri (*Parkia roxburghii*), toho (*Artocarpus* sp.), kalaero (*Diospyros pilosanthera*), kasu meeto (*Diospyros malabarica*), kabuko (*Syzygium* sp.), menambo (*Garcinia tetrandra*), huhubi (*Artocarpus dasyphylla*), and tembeuwa (*Kjellbergiodendron celebicum*) (Figure 3).

Diet composition

Most fragments of food plants in the faecal samples of the anoa could be recognised (82 %), suggesting that the method of analysing epidermal fragments in the faecal samples of anoa is suitable for studying diets of anoa. The 'unidentified' fragments in the faecal samples were categorised into dicot fruit, dicot, monocot, and fern leaves. Food plant fragments identified (both seasons combined) constituted the following proportions of the diet, respectively: dicots 84 %, monocots 11 %, and ferns 5 %. Leaves and stems constituted 78 %, while fruit made up 22 % of the diets (Figure 5).

A total of 55 species of food plants were identified in the faecal samples; of the dicots, *Merremia peltata* (35.8 %), fig fruit *Ficus* spp. (10.9 %), *Physalis angulata* (7.5 %) and *Schizostachyum* spp. (4.4 %) are the predominant species consumed by anoa (Table 1). Fragments of *Merremia peltata* were not only predominant in proportion but also had the highest frequency of occurrence (100 %), with fragments of this species being found in every faecal sample analysed. Identification of fragments in the faecal samples revealed that, in general, fruit fragments (except seeds) were more difficult to identify than leaf

(a) (b) (c)

Figure 3. Among the food plants of anoa in the natural habitats: a. Balandete (*Merremia peltata*), b. Dongi (*Dillenia ochreata*), c. Wehuko (*Ficus variegata*). (Photo: Abdul Haris Mustari).

fragments, and monocot fragments were relatively easier to identify than dicots and fruit. The main food plants eaten by the anoa for the monocot category were bamboo (43 %), followed by sedges (39 %), while grasses constituted 7 % of the diet.

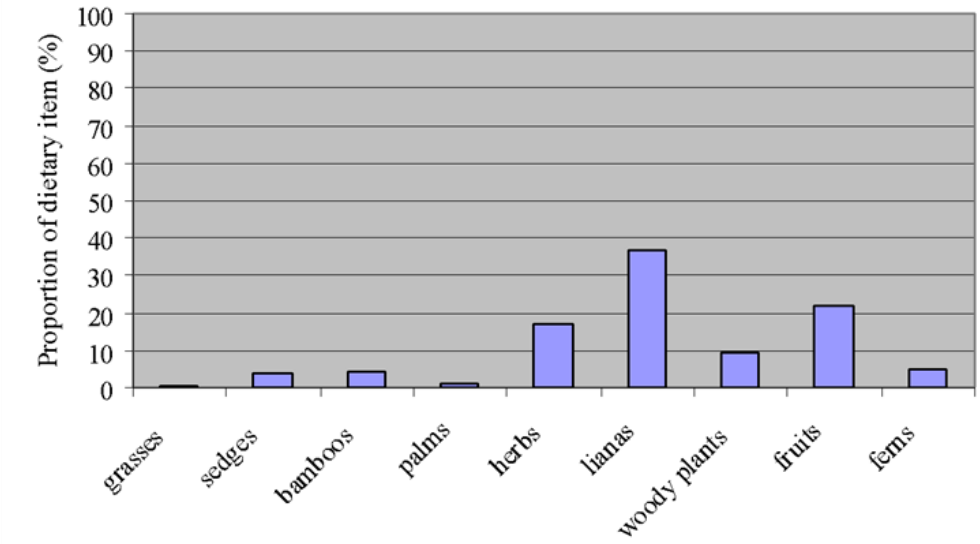

Figure 4. Proportions of food plants in the diet of anoa.

Anoas are the smallest of the living buffaloes; body weight is 80-100 kg for lowland anoa, and less than 80 kg for mountain anoa (Mustari 2019). The tamaraw (*Bubalus mindorensis*), which is endemic to Mindoro Island of the Philippines, has a body weight of 200-274 kg, while the Asian water buffalo (*Bubalus bubalis* and *B. arnee*), and African buffalo (*Syncerus caffer*) can weigh of up to 1000 kg (Wilson & Mittermeier 2011). Based on the predominance of dicotyledonous in the diets, anoa's food plants differed from those of other members of the Bubalina including water buffalo (*Bubalus bubalis*), tamaraw (*B. mindorensis*), and African buffaloes (*Syncerus caffer*), all feeding predominantly on monocotyledonous, mainly grasses (Poaceae), inhabiting the relatively open areas including savannahs. Water buffaloes are associated with wet grasslands and swamps; their favourite foods are lush grass and vegetation growing in or beside rivers and lakes (Nowak 1991). Although it uses various types of habitats, the tamaraw prefers forest edge areas, which make it easier to forage in more open places such as grasslands (Tabaranza et al. 2022). African buffalos are found in the open grassy and swampy areas or in

Table 1. Proportion of total fragment area and frequency of occurrence of fragments in faecal samples of food plants eaten by anoa. (lf = leaf, fr = fruit, D = dicot, M = monocot).

No	Vernacular name	Botanical name	Family name	Proportion (%)			Frequency of occurrence (%)
				Rainy season	Dry season	Rainy and Dry seasons	
1	Balandete (lf)	*Merremia peltata*	Convolvulaceae	28.7	43.7	35.8	100
2	Pokae (fr)	*Ficus* sp.	Moraceae	2.6	20.0	10.9	59
3	Unknown (fr)	*Monocots fruit*	Poaceae	16.1	1.9	9.3	57
4	Unknown (lf/D)	*Dicots leave*	-	10.9	6.3	8.7	64
5	Tameau langgai	*Physalis angulata*	Solanaceae	11.7	3.0	7.5	52
6	Kowuna (lf)	*Schizostachyum* spp.	Poaceae	3.8	5.0	4.4	74
7	Paku hada (lf)	*Microlepia* sp.	Dennstaedtiaceae	5.3	2.5	4.0	59
8	Rara (lf)	*Scleria purpurascens*	Cyperaceae	3.3	2.0	2.7	44
9	Wehuko (lf)	*Ficus variegata*	Moraceae	2.4	1.1	1.8	30
10	Holea (lf)	*Cleistanthus sumatranus*	Phyllanthaceae	1.1	1.4	1.2	23
11	Wako (lf)	*Caryota mitis*	Arecaceae	1.4	1.0	1.2	28
12	Tawa huko (lf)	*Gnetum gnemon*	Gnetaceae	1.4	0.9	1.2	21
13	Kapu (fr)	*Ficus* spp.	Moraceae	0.2	1.6	0.8	8
14	Kaleuwi (lf)	*Hypobathrum microcarpum*	Rubiaceae	0.3	1.4	0.8	30
15	We wai (lf)	*Flagellaria indica*	Flagellariaceae	0.9	0.7	0.8	31
16	Ulu pulu manu (lf)	*Leptaspis banksii*	Poaceae	1.1	0.2	0.7	18
17	Woro woro (lf)	*Saurauia* sp.	Actinidiaceae	1.1	0.1	0.7	8
18	Gelagah (lf)	*Saccharum spontaneum*	Poaceae	1.2	0.0	0.6	5
19	Taena (lf)	*Timonius* sp.	Rubiaceae	0.3	1.0	0.6	20
20	Dongi (fr)	*Dillenia ochreata*	Dilleniaceae	0.2	1.0	0.6	16
21	Taluede (lf)	*Stenochlaena palustris*	Blechnaceae	0.3	0.9	0.6	11
22	Lempeni (lf)	*Ardisia humilis*	Primulaceae	0.5	0.3	0.4	16
23	Pepundi hao (lf)	*Uvaria littoralis*	Annonaceae	0.3	0.4	0.4	7
24	Waru (lf)	*Hibiscus tiliaceus*	Malvaceae	0.1	0.6	0.3	5
25	Tokoalinda (lf)	*Elatostema rostratum*	Urticaceae	0.6	0.0	0.3	7
26	Kura langga (lf)	*Pachystachys coccinea*	Acanthaceae	0.3	0.3	0.3	11
27	Pundikia (stem)	*Musa* sp.	Musaceae	0.5	0.0	0.3	5
28	Kura donga (lf)	*Axonopus compressus*	Poaceae	0.5	0.0	0.3	8
29	Kosimbo (lf)	*cf. Hedychium*	-	0.4	0.0	0.2	2
30	Tarapasi (lf)	*Syzygium lineatum*	Myrtaceae	0.3	0.1	0.2	3
31	Hao tambololi (lf)	*Trichosanthes* sp.	Cucurbitaceae	0.1	0.4	0.2	3
32	Haonggonduri	*Mimosa* sp.	Fabaceae	0.4	0.0	0.2	2
33	Loluna (lf)	*Cordia myxa*	Boraginaceae	0.4	0.0	0.2	8
34	Puta (lf)	*Barringtonia racemosa*	Lecythidaceae	0.0	0.4	0.2	10
35	Pangi (fr)	*Pangium edule*	Achariaceae	0.0	0.4	0.2	5
36	Tia (lf)	*Archidendron palauense*	Fabaceae	0.0	0.4	0.2	10
37	Holea mbute (lf)	*Cleistanthus* sp.	Phyllanthaceae	0.3	0.0	0.2	3
38	Lombinga (lf)	*Dendrocnide stimulans*	Urticaceae	0.3	0.0	0.2	7
39	Paku (lf)	*Blechnum orientale*	Blechnaceae	0.1	0.1	0.1	11
40	Wonggia (lf)	*Syzygium polycephalum*	Myrtaceae	0.0	0.2	0.1	5
41	Kokapi (lf)	*Drynaria sparsisora*	Polypodiaceae	0.0	0.2	0.1	3
42	Pae pae (lf)	*Isachne albens*	Poaceae	0.1	0.1	0.1	5
43	Hokio (lf)	*Acronychia trifoliolata*	Rutaceae	0.1	0.1	0.1	26
44	Huhubi (lf)	*Artocarpus dasyphylla*	Moraceae	0.1	0.0	0.1	3
45	Unknown (lf/fern)	Fern	-	0.1	0.0	0.1	3
46	Hilanggoku (lf)	*Cyrtococcum patens*	Poaceae	0.1	0.0	0.1	3
47	Ombana (lf)	*Sumbaviopsis albicans*	Euphorbiaceae	0.0	0.1	0.1	2
48	Kole (lf)	*Mitrephora cf polypyrena*	Annonaceae	0.0	0.1	0.0	2
49	Toho (fr)	*Artocarpus* sp.	Moraceae	0.0	0.1	0.0	2
50	Kabuko (fr, bark)	*Syzygium* sp.	Moraceae	0.1	0.0	0.0	2
51	Menambo (fr, bark)	*Garcinia tetrandra*	Clusiaceae	0.1	0.0	0.0	2
52	Unknown (lf/M)	*Monocots*	Poaceae	0.0	0.1	0.0	2

Table 1. Contd.

No	Vernacular name	Botanical name	Family name	Proportion (%)			Frequency of occurrence (%)
				Rainy season	Dry season	Rainy and Dry seasons	
53	Rotan (fr/M)	*Calamus* sp.	Arecaceae	0.0	0.0	0.0	2
54	D.heterophylla (lf)	*Derris trifoliata*	Fabaceae	0.0	0.0	0.0	2
55	Akar akaran (lf)	*Mikania cordata*	Asteraceae	0.1	0.0	0.1	2

grassy savannah habitats in Africa (Sinclair 1977).

Anoas are forest-dwelling ungulates inhabiting the tropical rain forests on Sulawesi, their diets are mainly leaves of dicotyledonous plants. This study also showed that anoa consume a high proportion of fruit, which is up to 22 %. Parts of plants eaten by anoa included leaves, fruit, flowers, shoots, stems, and grass bulbs of many plant species. In captivity, anoa has a habit of choosing forage firstly started with fruit, then leaves or young shoots, and finally grasses (Mustari 1996).

Seasonal change in the diets

There was an increase in fruit components in the diet of anoa in February and September, which were the peaks of the fruiting seasons (Figure 6). Most of the fruit trees produced fruit in the rainy season, which reached a peak in February, yet many of the fruit trees, such as figs (*Ficus* spp.) produced fruit both in rainy and dry seasons (Table 2). Fruit components, especially seeds of figs, were found significantly in the faeces of anoa. Fruit fragments were recorded in the faecal samples indicating that anoas played a significant role as seed dispersers, propagating the food plants, as do other frugivores inhabiting Sulawesi's tropical rain forests, including sulawesi warty pig (*Sus celebensis*), sulawesi black macaques (*Macaca* spp.), and red knobbed hornbill (*Rhyticeros cassidix*) (Mustari 2020). As many as 24 seeds of *Parkia roxburghii* were counted in a single defecation (fresh weight 500 g) of anoa. A fruit of *Parkia roxburghii* contained 7 seeds, meaning that every faeces excreted by an anoa required approximately 3.5 fruits. Other seeds that were found in the dung of the animals were *Artocarpus dasyphylla*, *Ficus* spp., *Artocarpus* sp., and *Diospyros* sp.

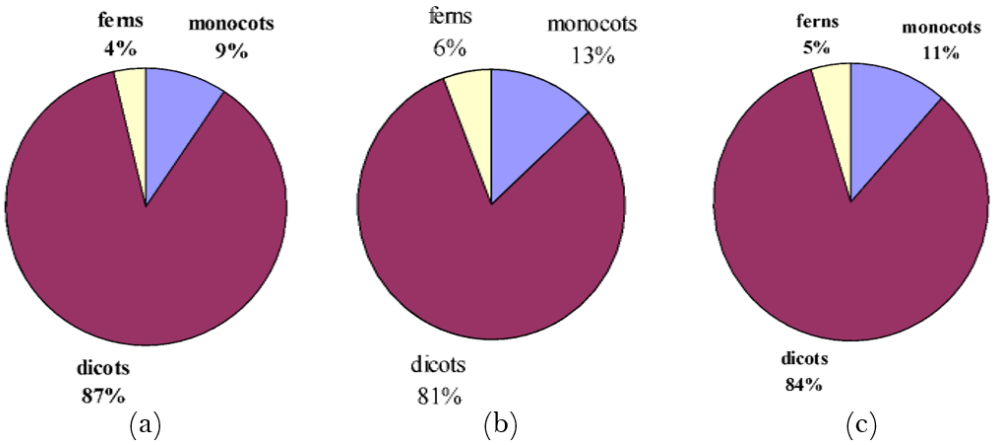

Figure 5. Proportions of monocots, dicots, and ferns in the diet of anoa: (a) rainy season, (b) dry season, (c) both seasons combined.

In general, young leaves and shoots have higher protein and lower crude fibre content than older leaves (McDonald et al. 1995). High-quality foods contain easily digestible carbohydrates and proteins, while low-quality foods are usually old, tough, and woody or fibrous and indigestible. High-

quality foods are young, soft, and green (Jarman & Sinclair 1979). That anoa has developed a feeding strategy that is different from those of other buffaloes could be partly explained by the fact that, in general, among related species with similar digestive capabilities, smaller species require better-quality food than do large species because of the former's higher metabolic rate, although individuals of larger species require larger absolute quantities of food (Jarman & Sinclair 1979).

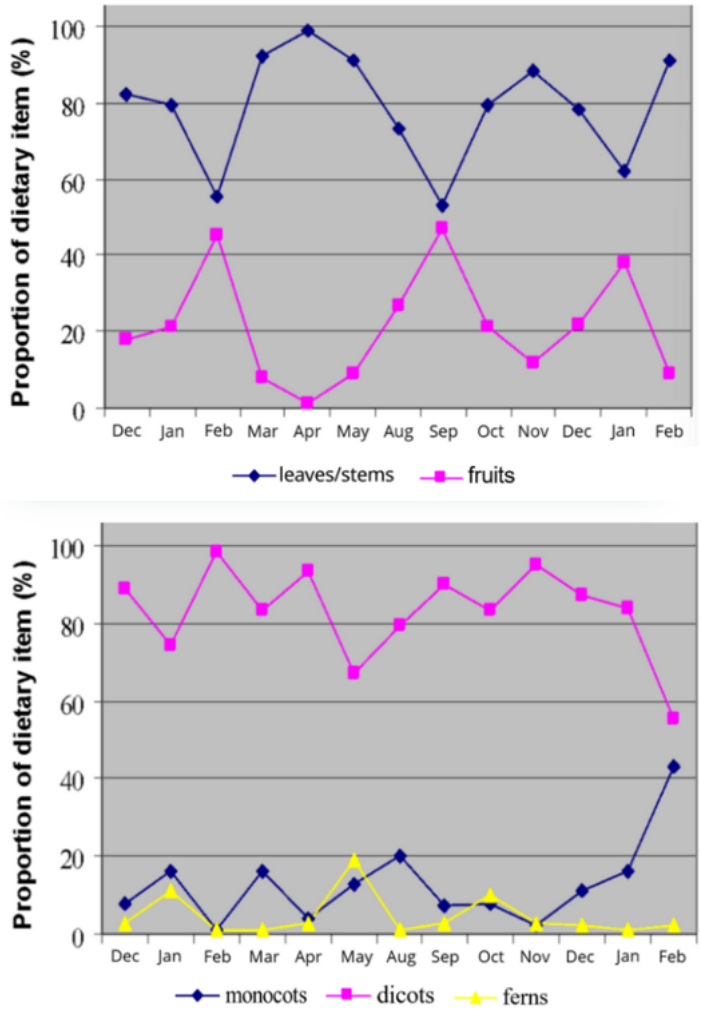

Figure 6. Monthly proportions of monocots, dicots, ferns, leaves/stems, and fruits in the diet of anoa from 2001 to 2002.

Seedlings and undergrowth provide the greatest food sources for anoa, including seedlings of woody plants, herbs, lianas, sedges, bamboos, and grasses. In bamboo forest, the main foods of the anoa are leaves, shoots, and sprouts of the bamboos (*Schizostachyum lima* and *Schizostachyum* cf *brachycladum*). Young leaves and shoots of these bamboos were available all year round. Fruit fragments could be found in the diets of anoa, suggesting that the generative part of the plants plays an important role in the diet of the animals. Most of the fruiting trees produced fruit in the rainy season; the fruiting trees started flowering immediately at the early weeks start of the rainy season in December. A total of 34 fruit species have been recorded as eaten by anoa. Footprints and faeces of anoa were frequently observed under the fruiting trees of figs (*Ficus* spp.), dongi (*Dillenia ochreata*), konduri (*Parkia roxburghii*), toho (*Artocarpus* sp.), kasu meeto (*Diospyros malabarica*), kalaero (*Diospyros pilosanthera*), kabuko (*Syzygium* sp.), menambo (*Garcinia tetrandra*), and huhubi (*Artocarpus dasyphylla*). Fragments of fruit, such as seeds, fruit coats, and flesh, could be identified in the faecal samples. These fragments

Table 2. Phenology of fruiting trees that are potentially eaten by the lowland anoa (* = fruiting, fl = flowering, fl* = flowering and fruiting). Rainy season = January to May, Dry season = July to November; June and December are transitional periods. Most of the fruiting trees started flowering and/or fruiting in the early part of the rainy season in December and January.

Vernacular name	Botanical name	Month											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pepunding-gasu	*Alphonsea javanica*	*	*	*	*	*							fl*
Rema	*Arenga pinnata*	*	*	*	*	*	*	*	*	*	*	*	fl*
Huhubi	*Artocarpus dasyphylla*	*	*	*									fl*
Toho	*Artocarpus* sp.	*	*	*									fl*
We Kilala	*Calamus* sp.			*	*								
Dongi	*Dillenia ochreata*	*	*	*	*	*	*	*	*	*	*	*	fl*
Kalaero	*Diospyros pilosanthera*	*	*	*	*	*							fl*
Kasu meeto	*Diospyros malabarica*	*	*	*	*	*							fl*
Rau	*Dracontomelon mangiferum*	*	*	*						*	*		fl*
Mehere	*Drypetes cf globosa*	*	*										fl*
Kapu Lesea Hoa	*Ficus drupacea*	*	*	*	*	*							fl*
Kapu Wone	*Ficus hirta*	*	*	*	*	*							fl*
Elemeo	*Ficus* sp.	*	*										fl*
Pokae	*Ficus* sp.	*	*	*	*	*						*	fl*
Roramo	*Ficus* sp.	*	*	*									fl*
Wehuko	*Ficus variegata*					*							
Pedengisi	*Garcinia balica*	*	*	*	*	*							fl*
Dede Meiho	*Garcinia cf. dioica*	*	*	*									fl*
Mandula	*Garcinia dulcis*	*	*	*									fl*
Menambo	*Garcinia tetrandra*	*	*	*		fl							
Tembeuwa	*Kjellbergiodendron celebicum*	*	*	*	*	*							
Pundikia	*Musa* sp.	*	*	*	*	*	*	*	*	*	*	*	fl*
Pangi	*Pangium edule*	*	*	*	*	*	*	*	*	*	*	*	fl*
Konduri	*Parkia roxburghii*			fl	*	*	*	*	*	*			
Wewu	*Planchonia valida*	*	*	*									fl*
Oloho	*Spondias pinnata*				*	*							
Kabuko	*Syzygium* sp.	*	*	*									
Pepundi Hao	*Uvaria littoralis*	*	*										fl*

could be easily recognised with the naked eye, such as seeds of *Ficus* spp., *Artocarpus dasyphylla*, and *Parkia roxburghii*; even without the help of a microscope, these intact seeds could be identified in the faeces of anoa. These findings suggests that anoas play an important role in the regeneration of Sulawesi's tropical forest.

The lowland anoa has a high variety of food plants and is predominantly dicots, representing 84 % in the diet, suggesting that this species is browser. A key factor of conserving this species is maintaining the high diversity of food plants that are available in the natural habitats covering many habitat

types, including mangrove, beach, lowland, and lower mountain forests. Lowland anoa's diet also covered many species of fruits, constituting 22 % confirming that this species plays significant roles as seed dispersers in the tropical rain forest of Sulawesi and maintains the natural regeneration of the forests. The conservation implications of these findings are that biodiversity of plants and the pristine primary forests are the key factors in conserving the lowland anoa in the natural habitats.

CONCLUSIONS

Parts of plants browsed by the animals were leaves, shoots, and growing tips of the branches and twigs. A total of 55 species of food plants were identified in analyses of faeces of anoa. The chief foods of the animals were dicotyledons, which constituted 84 %, monocots 11 %, and ferns 5%. Leaves and stems constituted 78 %, while fruit composed 22 % of the diet. Intact seeds of fruit were found in the anoa faecal samples, indicating that anoa plays a significant role as seed dispersers. This study showed that a high diversity of food plants is a key factor in conserving lowland anoa in the natural habitats.

AUTHOR CONTRIBUTION

A.H.M. designed the research, collected and analysed the data, and wrote the manuscript, P.D.S.G.W. analysed the data, and O.P.A. analysed the data.

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CONFLICT OF INTEREST

The authors have no financial and personal relationships with other people or organisations that could have influenced this work.

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