

## INVENTORY OF GRASSES IN SELECTED BARANGAYS OF SAN ROQUE, NORTHERN SAMAR, PHILIPPINES

Krissa M. Goetz<sup>1</sup> and Abel Alejandro U. Flores, Jr.<sup>1,2</sup>

<sup>1</sup>University Research and Development Services

<sup>1,2</sup>University Research and Development Services and  
Biological Sciences Department, College of Science

### ABSTRACT

This study was focused on the identification of the different grass species and its economic uses. It was conducted in selected barangays of San Roque, Northern Samar, during the months of September – November, 2017. Environmental factors like soil and air temperature, soil type, and soil pH were also determined, including the economic uses of grasses in the study area. Purposive sampling technique was done, together with specimen collection for herbarium preparation, gathering data on environmental factors, and interview of residents for the local names and uses of the specimens. Twenty two (22) species were found to be present in the area, with Barangay Dale having the most number (16) of species, while Barangays Malobago and Pagsang-an had the least number (8 each). There were eight (8) species common to all sampling sites. Grasses were mostly used for human food, for animal feed, for medicinal purposes, for industry, and for landscaping. Most grasses were found in clay, sandy, or loamy substrate, with a pH ranging from 6.2 (slightly acidic) to 7.7 (slightly basic). Soil temperatures ranged an average of 28.9°C to 32.1°C, while air temperatures averaged from 30.0°C up to 37.0°C. Results imply that grasses are of economic importance to the people as source of food, animal feed, medicine, industry, or for landscaping. Environmental factors were found optimal for the existence of grasses in the area.

**KEYWORDS:** *inventory, grasses, economic uses, San Roque, Northern Samar*

## INTRODUCTION

Grass commonly refers to a monocotyledonous flowering plant, diverse in species, habitat, and form. There are cultivated ones, while others are “weeds” to crops. Worldwide in distribution, grasses occur in mountains, plains, yards, lawns, or roadsides (Laoreno, 2011). It belongs to the largest and most economically and ecologically important plant families, the *Poaceae* (*Graminae*), with over 9,000 species spread on every continent in a wide variety of habitats, either as the dominant plant type (in prairies and tundra), or as minor components of plant communities. Collectively, grasses domesticated as crops are the world's most important food, feed, or beverage sources like barley (*Hordeum*), corn (*Zea*), oats (*Avena*), rice (*Oryza*), rye (*Secale*), wheat (*Triticum*), and sugarcane (*Saccharum*). Grasses are also important components of many ecosystems (grasslands and savannahs), preventing soil erosion, providing forage for livestock, medicinal preparations, and for construction or handicraft (Simpson, 2006).

Piperno and Sues (2005) reports that there are about 600 genera, with 9,000 or more species, of grasses and estimates show it comprise 20% of the world's vegetation. The term also applies to grass-like plants such as rushes (*Juncaceae*) and sedges (*Cyperaceae*). They are extremely abundant in flat, open, and dry regions of many continents (Mauseth, 1998).

In the province of Northern Samar, Mahinay (2008) has reported 22 grass

species present in Zone 3 of the University of Eastern Philippines, while Flores and Galenzoga (2017) found a total of \_\_ grass species in three zones of the University. There is, therefore, a dearth of information on grasses in the province.

## METHODOLOGY

### Locale of the Study

This study was conducted in 5 randomly selected barangays of the municipality of San Roque, Northern Samar, namely: Barangays Dale, Malobago, Pagsang-an, Coroconog, and Bantayan. It is a 4<sup>th</sup> class municipality with a population of 30,652 (2016 Census) living in a land area of 153 square kilometers. Its major crop products are copra, abaca, root crops, and vegetables, while fishing is a secondary economic activity of the residents.

### Research Design and Sampling Technique

The study used descriptive research, utilizing purposive sampling technique, in the collection and identification of specimens.

### Data Gathering Procedure

A knife or bolo was used to collect a representative sample of grass species which were placed in plastic containers, labeled, and recorded. Local names and economic uses of grasses were gathered through interview with residents in the locality. Data on environmental conditions

were taken using a thermometer and pH strips. Photographs of the specimens were taken to facilitate identification.

### Identification of Specimens

Mounted specimens were identified using taxonomic references like "Guide to Grassland Plants" by Santos (1983), and "Guide to Philippine Flora and Fauna" (Vol. IV).

### Herbarium Preparation

Sample specimens were preserved in a herbarium, following the procedure used by Potot (1995), adopted from protocols of Flora of the Philippines by the National Museum.

## RESULTS AND DISCUSSION

Table 1 show the species composition of grasses in selected barangays of San Roque, Northern Samar. It can be gleaned that Barangay Dale had the most numbers of species (16) since it has a loamy soil and is situated near a river. Barangays Pagsangan and Malobago had the least number (each had 8) species identified and its soil type was clay and were situated near mountains. Having a sandy loam soil, Barangay Bantayan had 14 species reported, while Barangay Coroconog, with a clay loam substrate, had 13 species collected. The few numbers of species sampled does not necessarily mean that grasses are rare or non-existent in the study area, rather, they were not observed because most vegetation in most sampling

sites were cut as fields were readied for the rice cropping season.

Table 1. Species Composition of Grasses in San Roque, Northern Samar

Scientific Name	Common/Local Name	1	2	3	4	5
<i>Chloris gayana</i>	Rhodes grass	+	-	+	-	-
<i>Chrysopogon aciculatus</i>	Spear grass	+	+	+	-	-
<i>Cymbopogon citratus</i>	Tanglad	-	-	-	+	-
<i>Cynodon dactylon</i>	Bermuda grass	-	+	+	-	-
<i>Dactyloctenium aegyptium</i>	Damong balang	+	+	+	-	-
<i>Danthonia unispiratus</i>	Oat grass	+	-	-	-	-
<i>Eleusine indica</i>	Paragis	+	+	+	+	+
<i>Hackxelochoa granulatis</i>	Buffalo grass	+	+	+	+	-
<i>Imperata cylindrica</i>	Cogon grass	+	+	+	+	+
<i>Nardus stricta</i>	Mat grass	+	+	+	-	-
<i>Oryzopsis contracta</i>	Indian rice grass	+	-	-	-	+
<i>Panicum maximum Jacq.</i>	Daat	-	+	+	+	-
<i>Paspalum scrobiculatum</i>		+	+	+	-	+
<i>Paspalum conjugatum</i>	Lakatan	+	+	-	+	-
<i>Paspalum conjugatum Berg.</i>	Carabao grass	-	+	+	-	+
<i>Phragmites karka</i>	Tanabog	-	-	-	-	+
<i>Poa annua</i>	Meadow grass	+	-	+	-	-
<i>Poa laxa</i>	Blue grass	-	-	+	+	+
<i>Poa pratensis</i>	Blue grass	+	-	-	-	-
<i>Stipa spartea</i>	Needle grass	-	+	+	-	+
<i>Thysanolaena latifolia</i>	Tangbo	+	+	+	+	-
<i>Zoysia matrella</i>	Manila grass	-	-	+	-	-
<b>TOTAL</b>		<b>14</b>	<b>13</b>	<b>16</b>	<b>8</b>	<b>8</b>

Legend: + = present - = absent

- 1 = Barangay Bantayan
- 2 = Barangay Coroconog
- 3 = Barangay Dale
- 4 = Barangay Malobago
- 5 = Barangay Pagsang-an

### Frequency of Grass Species

Presented in Table 2 is the frequency and relative frequency of grass species in San Roque, Northern Samar. Although frequency of grasses differs on a monthly basis, it appears that over the three-month study period, the most frequently observed was *Eleusine indica* (RF = 9.14%), while the

least frequent were *Danthonia unispiratus* and *Poa pratensis* (RF = 1.57%).

Table 2. Frequency and Relative Frequency of Grasses in the Study Area

Species	Total	F (÷ 45)	RF (%)
<i>Chloris gayana</i>	11	0.244	2.960
<i>Chrysopogon aciculatus</i>	18	0.400	4.852
<i>Cymbopogon citratus</i>	9	0.200	2.426
<i>Cynodon dactylon</i>	7	0.455	1.880
<i>Dactyloctenium aegyptium</i>	22	0.488	5.919
<i>Danthonia unispiratus</i>	6	0.133	1.613
<i>Eleusine indica</i>	34	0.755	9.158
<i>Hackxelochoa granularis</i>	27	0.600	7.278
<i>Imperata cylindrica</i>	26	0.577	7.000
<i>Nardus stricta</i>	21	0.467	5.665
<i>Oryzopsis contracta</i>	12	0.267	3.239
<i>Panicum maximum</i> Jacq.	18	0.400	4.852
<i>Paspalum scrobiculatum</i>	28	0.622	7.545
<i>Paspalum conjugatum</i> Berg.	22	0.488	5.919
<i>Paspalum conjugatum</i>	15	0.333	4.039
<i>Phragmites karka</i>	9	0.200	2.426
<i>Poa annua</i>	14	0.311	3.772
<i>Poa laxa</i>	25	0.555	6.732
<i>Poa pratensis</i>	6	0.133	1.613
<i>Stipa spartea</i>	19	0.422	5.119
<i>Thysanolaena latifolia</i>	15	0.333	4.039
<i>Zoysia matrella</i>	7	0.155	1.880
<b>TOTAL</b>		<b>8.244</b>	<b>99.926</b>

Legend: F = Frequency    RF = Relative Frequency

### Economic Uses of Grasses

Table 3 presents the economic uses of grasses, which includes its use as food, forage, medicine, in industry, and in landscaping.

Table 3. Economic Uses of Grasses in the Study Area

Species	Economic Use
<i>Chloris gayana</i>	Mulch; prevent soil erosion
<i>Chrysopogon aciculatus</i>	Livestock feed
<i>Cymbopogon citratus</i>	Medicinal; spice in cooking
<i>Cynodon dactylon</i>	Landscaping of yards
<i>Dactyloctenium aegyptium</i>	Fodder for ruminants
<i>Danthonia unispiratus</i>	Livestock feed
<i>Eleusine indica</i>	Medicinal; livestock feed
<i>Hackxelochoa granularis</i>	Livestock feed
<i>Imperata cylindrica</i>	Medicinal; livestock feed
<i>Nardus stricta</i>	Background for displays
<i>Oryzopsis contracta</i>	Landscaping
<i>Panicum maximum</i> Jacq.	Medicinal; livestock feed
<i>Paspalum scrobiculatum</i>	Livestock feed

<i>Paspalum conjugatum</i> Berg.	Livestock feed
<i>Paspalum conjugatum</i>	Livestock feed
<i>Phragmites karka</i>	Livestock feed
<i>Poa annua</i>	Yard landscaping
<i>Poa laxa</i>	Livestock feed
<i>Poa pratensis</i>	Landscaping
<i>Stipa spartea</i>	Landscaping
<i>Thysanolaena latifolia</i>	For making brom
<i>Zoysia matrella</i>	Livestock feed

### Environmental Factors in the Study Area

Presented in the next table are the observed and measured environmental parameters in the study area. Results show that Barangay Bantayan, situated along the car line, is a plain with sandy loam substrate with an average soil pH of 7.5, a soil temperature of 31.6°C, and an air temperature of 31.77°C, on average.

Barangay Coroconog is also a level plain with a clay loam soil, whose average pH is 7.3, an air temperature of 32.55°C, and a soil temperature of 32.1°C. Barangay Dale, also along the car line, is level with a sandy loam substrate, an average soil pH of 7.3, soil temperature of 29.6°C, and an air temperature of 34.67°C. Situated at a low elevation, Barangay Malobago has a clay substrate with an average soil temperature of 28.6°C, air temperature of 32.44°C, and average soil pH of 7.3, while Barangay Pagsang-an also has a clay soil type, with an average pH of 7.4, a soil temperature of 30.3°C, an air temperature of 34.11°C, and is located on a plain.

These parameters are deemed optimum for the existence and growth of grasses in the study area.



Plate No.1 *Chloris gayana*



Plate No.2 *Chrysopogon aciculatus*



Plate No.9 *Imperata cylindrica*



Plate No.10 *Mardus stricta*



Plate No.3 *Cymbopogon citratus*



Plate No.4 *Cynodon dactylon*



Plate No.11 *Oryzopsis contracta*



Plate No.12 *Panicum maximum Jacq*



Plate No.5 *Dactyloctenium aegyptium*



Plate No.6 *Danthonia unispicatus*



Plate No.13 *Paspalum scrobiculatum*



Plate No.14 *Paspalum conjugatum*



Plate No.7 *Eleusine indica*



Plate No.8 *Hackxelochoa granularis*



Plate No.15 *Paspalum conjugatum Berg*



Plate No.16 *Phragmites karka*



medicinal purposes, landscaping, and in some small-scale cottage industries. Environmental factors characterizing the study area influence the presence or absence of grasses, such that changes in these factors lead to changes in the frequency and composition of grasses in the area.

### RECOMMENDATIONS

Conservation efforts of economically and ecologically significant grass species must be strengthened and strictly enforced to prevent the unsustainable exploitative practices of some residents in the area. Similar inventories in other municipalities would establish a more complete, meaningful, and useful baseline information on grasses in the province of Northern Samar.

### ACKNOWLEDGMENT

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### CONCLUSIONS

Based on the findings presented, it is concluded that several grass species are present in the study area. The most frequently observed species was *Eleusine indica*, which was present in all sampling sites, while the least frequent were *Danthonia unispiratus* and *Poa pratensis*. Most of the grasses were economically important as food, forage for livestock, for

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