Some Observations on Forestry Education in the United States

By TEODORO C. DELIZO

The writer had the good fortune of having been selected to go abroad as a participant in the Type A Technical Program of the United States under the joint sponsorship of the Foreign Operations Administration and the Philippine Council for United States Aid. The objective of the study and observation were as follows;

1. To study and observe the curricula, modern concepts of forestry education and teaching techniques which can be adapted to modernize and strengthen forestry education in the Philippines.
2. To learn the type and content of professional courses being offered at the leading schools, arrangement of curricula, educational policy, type, technique, and standards of instruction, integration of lecture work with laboratory and field work on the evaluation of candidates for professional degrees.
3. To gain experience that will enhance the participant's ability in teaching silviculture and watershed management in connection with seeding and planting in the College of Forestry, University of the Philippines.

One month before the opening of classes in the State College of Forestry at Syracuse, New York, I joined the Southern Trip in connection with Silviculture course No. 116 in which graduate students participated. The aims and purposes of the trip were: (1) To acquaint students with silvicultural conditions, methods and results in regions different from New York and Northeast; (2) To give students opportunity to discuss silviculture and forestry with experienced public and private foresters in different parts of the country; (3) To broaden the student's outlook by traveling through parts of the country different from New York and the Northeast. Forested areas that belong to the government as well as private industry in the states of Maryland, Virginia, North and South Carolina, Georgia, and Florida were visited. Problems confronting the forest in different states and regions visited were presented and solutions discussed by men who were fully informed of the subject matter. The services of men in public as well as in private industry were made available for demonstration and seminars on the various forestry problems.

It has been observed that the nations has embarked on an intensive program of studies and research to find means of solving many of the forestry problems as they occur today. Private industry, particularly those engaged in lumber, pulp and paper manufacture and naval stores are actively cooperating with the government in studies and research toward the attainment of sustained yield management, greater volume and growth production, and quality improvement. Of the overall picture of conditions obtaining in the different states that were visited, there were five distinct silvicultural management tendencies that were noted. The first is the improvement of the stand by the elimination of competition, regulation of density of stocking, proper spacing and selection of the species. In the control of hardwood competition, prescribed burning, scarification, applica-

tion of different tree poisons and mechanical methods had been demonstrated. The second is toward the even-aged form of forest management. This is particularly true of softwood for reason of greater simplicity of handling, and financial return. The price of softwood is on the upgrade and this will continue for many years to come.

The third is toward artificial regeneration. Preference of this method over that of the natural means is on its simplicity, greater assurance of the result, and the ease with which the young stand could be handled. In the Philippines, the same method is used in our reforestation projects on denuded areas where the original forest covers were gone. On residual stands, however, different methods are used. The fourth is the apparent consciousness on the part of both public and private owners toward the improvement of the forest crop through the modern methods of forest genetics. Experimental plots are located in various parts of the nation and scientific methods of tree improvement are being carried out. Many scientists are at present engaged in this particular phase of forest improvement. The fifth is a vigorous campaign and research on forest protection. Fire is so far the greatest protection problem, although insect and fungi add to the tremendous losses of forest products in some sections of the country. Fire-fighting equipment mounted on trucks and pumps that could be carried by men have been developed and improved. Studies are also being conducted on the control of some insect pest that threaten to destroy the Southern pine. Arteries of forest roads are being built dividing the forested areas into units of protection blocks. There is a research center at Coweeta, North Carolina where studies of the relationship of the forest to water and soil are being conducted.

COLLEGE CURRICULA

I enrolled in the State College of Forestry, Syracuse, New York, with the following objectives; (1) To learn the academic structure of the forestry school. (2) To enroll in classes that will increase the participant's ability to teach Silviculture, watershed management, seeding and planting. In connection with the above objectives, efforts were made to study the academic structure of the College of Forestry both in the undergraduate and graduate level with the end in view of determining which of the principal features could be adapted to strengthen forestry education in the Philippines.

Undegraduate studies. The students that may be admitted are selected from High School graduates of accredited High Schools or preparatory schools with sixteen units of preparatory work of High School grade. This requirement is very similar to that in the College of Forestry, U.P. In the undergraduate curriculum in the College of Forestry at Syracuse, there are six full four-year program and two optional programs grouped into; (1) Forest Areas, (2) Forest Products and, (3) Optional programs. Under the Forest Areas program, are general forestry which emphasizes the development and management of the forest to the highest growth, care and use; landscape and recreational management which emphasizes landscape architecture, the art of arranging land and the objects upon it for human use and enjoyment. Under the Forest Program, are Forest Utilization-conversion and distribution of lumber and related products; Forest Utilization-retail merchandinzing and light construction; Wood Technology which has to do with the anatomy and technical nature of wood; Pulp and Paper Technology which deals with the engineering and physical sciences essential to the technology of pulp, paper and related industries. The optional programs deal with arboriculture and landscape nursery; Plastic and Cellulose chemistry which emphasizes plastic technology and polymer chemistry.

In the implementation of the various programs, all freshmen are required to

take the same course. It is after the first year that a student enrolls for the spring camp and follows the program that he chooses to pursue. In other words, the branching out of the different programs occur after the first year. The curricula for the different programs of study are so adjusted as to give the maximum training to the student participant. It is believed that a similar system with modification could be followed for the College of Forestry, University of the Philippines. Under the present curriculum, it may be possible to stick to two general curricula, namely, Forest Areas and Forest Products. The former deals with general forestry and the latter should include Forest Utilization, Wood Preservation and Technology and may be Paper Manufacture. The branching for specialization may be effected during the last two years by selecting the subjects that must be taken up which are essential for the especialized field. Electives should be increased covering the subject matter of especialization. The list of subjects that are now followed should be reduced to only the very essential ones and more elective that bear on the especialized field should be taken up.

The number of units under the present curriculum is rather too heavy as compared with other universities. The number of units required for the degree of Bachelor of Science in Forestry in the School of Forestry at Berkeley, California is only 124, Michigan 136 and at Syracuse 142. In the University of the Philippines, College of Agriculture is 144, Veterinary Medicine 155, Engineering 142 and Public Administration 137 respectively. In the college of Forestry, U.P. the number of units required is 161. Before a student graduates, he has to take twosummer classes and must submit an approved thesis. It is believed that the present curriculum deserves a revision either to lengthen the course to five years, drop some of the subjects or reduce the number of units of some of the subjects presently taught.

Graduate studies. It cannot be denied that the science of forestry is never static and the college of Forestry cannot remain an institution granting only undergraduate degrees. It would seem that with the more than two hundred graduates with the degree of Bachelor of Science in Forestry and others from allied technical schools, the college is now ready to offer a graduate school leading to the degree of Master of Science in Forestry. Many of the graduates of this college have intimated their desire to continue if and when such a course if offered. Conditions in the college have changed much so that at present a Forest Products Laboratory is just a stone throw from the college building where facilities for research and studies are available. At present, however, there are no men to handle the courses prescribed outside of those offered at present but as soon as the three exchange professors from the United States will arrive, something could be done. Graduate study in this college should aim to train students on natural sciences underlying forest productivity and physical sciences which are fundamental to wood utilization technology and in the social sciences governing forest use. It should also aim at developing leaders in forestry by giving professional training in selected branches like research, teaching and in administration. They will be able to learn the techniques and methods of independent thinkers and constructive planners for an effective practice of forestry. Students that take up special courses in logging and lumbering may spend one summer in one of the big sawmills in Mindanao or Luzon.

RANGER SCHOOL

In the United States, except in one instance, all the Ranger schools operate as distinct units from the universities to which they are attached for administration purposes only. The primary objective of ran-

ger school training is to develop skilled workmen who are capable of doing the less technical work of the professional forester in handling of forest lands and act as directing hands to unskilled labor. A committee on the study of ranger schools in the United States had this to say, . . . "ranger schools should be established in each forest region, and the instruction should be of practical nature. It was felt that academic standards should be adjusted to the work that was to be done by the graduates. Ranger schools conducted at colleges or universities are not desirable. While such school may be included for purposes of administration in a university or college, it should have a separate plant, in the woods, if possible, among the forest and industrial conditions which it is the function of the school to serve. Its standards, its faculty, its atmosphere, its morale should be its own, rather than merge with those of a larger institution. Its instructors should if possible be professional foresters so that the students may acquire a sympathetic understanding and breadth of view as to its scope and aims." Presently the curriculum of the College of Forestry, U.P. combines the training of the professional forester and that of the ranger. Considering the size of the teaching staff and the number of students, the system is unwieldy. While the economic condition of the college may not permit the complete separation of the ranger and the professional forester curricula as at present, it is necessary to divorce the one from the other for a more effective forestry education in this country.

FACILITIES FOR INSTRUCTION

School forest. All of the ranger schools and forestry colleges visited in the United States own their school forests where the field exercises and studies are conducted. The forest property is an integral part of forestry schools for their laboratory and field exercises. The College of Forestry, U.P. owns no school forest. The Makiling National Park is at present used as field laboratory for the various forestry courses. At present the Commission of Parks and Wildlife has the full control of parks so that the college is just a squatter in the park and is not free to perform the different exercises and studies conducive to a thorough forestry education. It is necessary that a portion of the Makiling National Park be ceded or given to the College of Forestry if it is to render an effective forestry education for the nation.

Library. The libraries of the different colleges and schools of forestry in the United States are very well stocked with books and periodicals for references. In the College of Forestry, U.P., the number of books especially those used as references is very little. It is necessary that the number of volumes for books used as references should be increased in accordance with the number of students.

Visual aids. It was observed that colored kodaslides are popularly used to supplement lectures. The number of slides for the colleges is steadily built up by the arrangement that the film is supplied by the college and the faculty members take the pictures in connection with their field trips. The slides, however, will become the property of the college. I understand that the colleges have special prices for colored films from the Kodak company. This phase of instruction has not been given encouragement here because of the high price of films. The college should secure concessions with the Kodak company for reduced price for college use in order to popularize the use of visual aids in instruction. There is an up-to-date projector in the college for kodaslides which can be used to advantage with this arrangement.

School collections. The schools and colleges of forestry in the United States have execellent collections of fungi, insects, birds, botanical materials, forest products and other materials product of the forest. In

our college, we have no insect collection of our own so that students enrolled in Forest Entomology take the course in the College of Agriculture. The handful of collection of forest fungi is not properly kept for lack of facilities. The botanical collections, wood and seed samples, are, however increasing steadily. It is about time to consider the extreme necessity of having our entomological and pathological departments to bolster our own collection and improve our teaching techniques in connection with forest protection in the college. In the event that a complete separation of the ranger and undergraduate curricula could not be affected due to financial or other causes, the following are suggested. In the implementation of the undergraduate curriculum, however, additional faculty members would be necessary.

Terminal Ranger curriculum, following the description of courses presently offered in the College of Forestry, U.P.

FIRST YEAR

First Semester

	Units
Spanish 10	3
English 1	3
Botany 1a	3
Dendrology 1a	3
Mathematics 1a	3
Forest Engineering 1a	3
Introduction to Forestry	2
Military Science 1a	(1.5)
Physical Education 1a	(1)
Physical Education 2a	(1)

Second Semester

	Units
Spanish 11	3
English 2	3
Botany 1b	3
Dendrology 1b	3
Forest Management 1	3
Forest Engineering 1b	3
Military Science 1b	(1.5)
Physical Education 1b	(1)
Physical Education 2b	(1)

Summer: Field Practice—6 weeks; 6 credit.

SECOND YEAR

First Semester

	Units
Spanish 12	3
Mathematics 1b	3
Wood technology	3
Silviculture I	3
Forest Administration 1a	4
Forest Physiography	2
Military Science 2a	(1.5)
Physical Education 3a	(1)
Physical Education 4a	(1)

Second Semester

	Units
Spanish 13	3
Forest Economics	3
Lumbering I	4
Forest Products	4
Forest Administration 1b	3
Military Science 2b	(1.5)
Physical Education 3b	(1)
Physical Education 4b	(1)

Graduate Rangers may be admitted as irregular juniors under the undergraduate curriculum provided they have averages of 3 or better.

Undegraduate curriculum leading to the degree of Bachelor of Science in Forestry (B.S.F.). Only students that have an average of 3 or better may continue after the sophomore year. The description of courses follow those that are offered at present in the college.

FIRST YEAR

First Semester

	Units
English I	3
Spanish 10	3
Botany 1a	3
Chemistry 1a	4
Mathematics II	3
Introduction to Forestry	2
Military Science 1a	(1.5)
Physical Education 1a	(1)
Physical Education 2a	(1)
	18

SECOND SEMESTER

	Units
English 2	3
Spanish 11	3
Botany 1b	3
Chemistry 1b	4
Mathematics III	3
Forest Engineering Ia	2
Military Science 1b	(1.5)
Physical Education 1b	(1)
Physical Education 2b	(1)

SECOND YEAR

FIRST SEMESTER

	Units
Physics 11	3
Spanish 12	3
Dendrology Ia	3
Forest Engineering 1b	3
Forest Physiography	2
Zoology	3
Military Science 2a	(1.5)
Physical Education 3a	(1)
Physical Education 4a	(1)
	17

SECOND SEMESTER

	Units
Physics 12	3
Spanish 13	3
Dendrology 1b	3
Silviculture I	3
Forest Economics	3
Forest Soils	3
Military Science 2b	(1.5)
Physical Education 4b	(1)
Physical Education 4b	(1)
	18

Students that follow this curriculum will follow either the Forest Utilization curricula after the sophomore year.

A. FOREST AREAS
THIRD YEAR

FIRST SEMESTER

	Units
Mathematics 8 (An. Geometry)	3
Forest Pathology	3
Surveying 1a	3
Silviculture 2	3
Wood Technology I	3
Electives	2
	17

SECOND SEMESTER

	Units
Statistics II	3
Forest Entomology	3
Surveying 1b	4
Forest Soils (Advanced)	3
Electives	4
	17

SUMMER: Forestry work—6 weeks, 6 units.

FOURTH YEAR

FIRST SEMESTER

	Units
Business Law I	3
English 3	3
Forest Administration	3
Forest Management I	3
Research Problems	2
Electives	3
	17

SECOND SEMESTER

	Units
Business Law 2	3
Forest Protection	3
Forest Policy and History	3
Forest Management	3
Research Problem	3
Electives	3
	18

Suggested electives in addition to those already mentioned in the catalog for the current school year for the College of Forestry and Agriculture.

1. Recreational land administration—(2)
2. Principles of Wild Life Management (2)
3. Soil and water conservation—(3)
4. Range Management—(2)
5. Reforestation—(3)
6. Forest Tree Seeds—(3)
7. Regional Studies—(2)
8. Recreational land use and activities—(2)
9. Plant materials—(2)
10. Human relations in forestry
11. Advanced forest administration—(2)
12. Plant anatomy—(2)
13. Advanced forest protection—(2)
14. Statistics 12—(3)
15. Mathematics 10—(3)
16. Mathematics 11—(3)

(*Continued on page 54*)

Some Useful Derivation and Application of Diameter Growth of Commercial Dipterocarp in the Basilan Working Circle

(From the first periodic growth data taken from six sample plots)*

by
MARTIN R. REYES
Forester, Bureau of Forestry

Growth is a basic data needed for determining the yield in a working circle to regulate the cut on a sustained yield basis. The table presented here summarizes some useful figures from the data gathered in six sample plots (one-hectare and 2-1/4-hectare plots established in 1950 in a 22-year old logged-over by steam donkeys, and two 1-hectare plots established in 1950 just after logging by tractors) in the southwestern. These plots were remeasured in 1954 and central western portions of the Basilan Working Circle. The derivations are briefly explained to serve as a simple guide in their use or preparation of similar tables for other forest tracts.

Column (2)—These are the periodic annual growth in diameter (dbh or dab) in centimeters, reckoned at diameter class when first measured in 1950. These figures are derived from smoothed free-hand curves. From seedling to 35 cm. diameter class, the curve for plots established just after logging was used; from 40 cm. diameter class and over, the curve for plots established 22 years after logging was used.

$$\text{PAI} = \frac{\text{Total diameter increment of trees in dia. class}}{(\text{No. of trees})\ (\text{No. of Yrs. between measurements})}$$

Example: For diameter class 30—
Total diameter increment: 41.40
No. of trees considered: 15

$$\text{PAI} = \frac{15 \times 4}{41.40}$$

.69 cms. actual, which was plotted; from smoothed, free-hand curve, .72 cms.

Column (3), Years in class.—(For seedling to 5 cm.-dia. class, 11.4 years: this was derived by extending the curve to the zero line of the diameter class ordinate).

Column (4), Age at diameter class.—Years from seedling to a certain diameter class (Col. 3) are added and the sum is the estimated age at that diameter class.

Example: To compute for years a 30-cm. tree stays in this class until it "graduates" to the next diameter class:

$$\text{Years in class} \quad \frac{\text{Diameter class interval, 5 cms.}}{\text{PAI, .72}} = 6.94 \text{ years}$$

* Established in 1950 by Foresters I. Achocoso, F. Asiddao, L. Diaz and R. Valbuena; remeasured in 1954 by Foresters M. Reyes, L. Diaz and Rangers H. Esteves and J. Cruz.

Thus, age for 20 cm. class tree is found by summing up seedling—11.4, 5 cm. class—9.09, 10 cm. class—8.62, 15 cm. dia. class—8.06 and 20 cm. dia. class—7.58, which is 44.75 years.

Column (5), Diameter reached after 5, 10, etc. years. Ex.: What will be the approximate diameter of a residual 30 cm. dbh (Col. 1) 30 years after logging? Add consecutively years in class (Col. 3) from ~~cl~~ diam. class down the line until a sum nearest to 30 years is reached; interpolate for year difference and add the centimer so found to the next diameter class. The sum is the diameter reached. Thus, sum of added years in class (Col. 3) from 30 cm. class nearest 30 years is 29.64 which is at line for 50 cm. class. The diameter (approx.) reached is the next line down, or 55 centimeters. Difference of 30 and 29.64 years is .36. .36 of 1.18 cm. increment rate at 55 cm. (Col. 2) is .42 cm. Adding .42 cm. to 55 cm. gives 55.42 cm.

Column (6), Number of years to reach 50, 60 and 70 cm. diameter.—

Ex.: How long will it take a 30 cm. (Col. 1) residual to reach 60 centimeters in diameter? Add years in class (Col. 3) from 30 cm. class line until 35 cm. class line. It is 33.88 years.

Some application of the derived figures will be shown in the next issue.

George Bernard Shaw was having lunch in a London restaurant one day, when an orchestra struck up a particularly noisy tune. Without any intermission, it followed with another, Shaw called the head waiter and asked,

"Does the orchestra play anything on request?

"Yes sir," the man replied," Is there something you would like them to play?'

"There is," said Shaw," Ask them to play dominoes until I have finished eating."

GROWTH FIGURES DERIVED FROM SAMPLE PLOTS IN LOGGED-OVER AREAS IN THE BASILAN WORKING CIRCLE
(FOR COMMERCIAL DIPTEROCARPS*)

(1) Diameter Class cms. (d.b.h. or d.a.b.)	(2) Periodic Annual Increment (Cm.)	(3) Years in Class	(4) Age at Dia. Class (Years)	(5) Diameter (Centimeters) Reached After ... YEARS																			(6) Number of Years to Reach Diameter class:		
				5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	50 cm.	60 cm.	70 cm.
Seedling		11.4	11.40			6.98	9.73	12.62	15.55	18.65	21.87	25.17	29.62	32.16	35.78	39.48	43.58	48.13	53.24	58.97	65.29	72.26	79.70	76.97	85.88	93.44
5	.55	9.09	20.49	7.75	10.53	13.43	16.42	19.52	22.80	26.14	29.59	33.17	36.82	40.59	44.74	49.46	54.74	60.67	67.21	74.29	81.87	89.78	98.03	65.57	74.48	82.04
10	.58	8.62	29.11	12.91	15.86	18.96	22.19	25.51	28.96	32.51	36.15	39.85	43.98	48.59	53.77	59.54	65.96	72.97	80.45	88.33	96.51	104.99		56.48	65.39	72.95
15	.62	8.06	37.17	18.10	21.28	24.58	28.01	31.52	35.13	38.83	42.84	47.28	52.29	57.92	64.13	70.97	78.35	86.12	95.87	102.63				47.86	56.77	64.33
20	.62	7.58	44.75	23.30	26.67	30.12	33.72	37.39	41.23	45.44	50.21	55.63	61.65	68.26	75.42	83.07	91.03	99.33						39.80	48.71	56.27
25	.69	7.25	52.00	28.45	31.98	35.60	39.30	43.37	47.89	51.98	58.67	64.95	71.96	79.32	87.14	95.27	104.33							32.22	41.13	48.69
30	.72	6.94	58.94	33.60	37.26	41.09	45.28	50.03	55.42	61.43	68.03	75.17	82.81	90.75	99.05									24.97	33.88	41.44
35	.74	6.75	65.69	38.70	42.70	47.12	52.11	57.71	63.92	70.73	78.10	85.84	93.94	102.34										18.03	26.94	34.50
40	.83	6.02	71.71	44.15	48.78	53.98	59.78	66.23	73.26	80.76	88.65	96.85												11.28	20.19	27.75
45	.95	5.26	76.97	49.75	55.08	61.07	67.63	74.74	82.36	90.28	98.56													5.26	14.17	21.73
50	1.07	4.67	81.64	55.39	61.40	67.99	75.12	82.76	90.71	99.00		119.93													8.91	16.47
55	1.18	4.24	85.88	60.97	67.55	74.64	82.25	90.16	98.44																4.24	11.80
60	1.28	3.91	89.79	66.49	73.54	81.06	88.95	97.17				124.66														7.56
65	1.37	3.65	93.44	71.96	79.38	87.21	95.34	103.80																		3.65
70	1.45	3.45	96.89	77.34	85.05	93.12	101.49																			
75	1.51	3.31	100.20	82.63	90.57	98.86																				
80	1.56	3.21	103.41	87.86	96.03	104.50																				
85	1.60	3.13	106.54	93.07	101.44																					
90	1.64	3.05	109.59	98.28																						
95	1.68	2.98	112.57	103.45																						
100	1.71	2.92	115.49																							

* Tangile, Almon, White Lauan, Mayapis, Kalunti, Manggasinoro. (Nato also included).

Acknowledgment: Curve and readings by Forester E. T. Tagudar; computations by Forester D. Antonio and Ranger F. Barrer.

PRICES OF LUMBER (DIPTEROCARP SPECIES ONLY)

MONTH	AVERAGE MONTHLY WHOLESALE PRICE (BY PRODUCERS) PER THOUSAND BOARD FEET OF LUMBER (ROUGH) FOR PERIOD FROM JULY, 1955 TO MAY, 1956						AVERAGE MONTHLY WHOLESALE PRICE PER THOUSAND BOARD FEET OF LUMBER (ROUGH) FOR THE PERIOD FROM JULY, 1955 TO MAY, 1956.							AVERAGE MONTHLY RETAIL PRICE PER THOUSAND BOARD FEET OF LUMBER (ROUGH) FOR THE PERIOD FROM JULY, 1955 TO MAY, 1956.							
	Apitong	R. L.	Tang.	Palo.	W. L.	Maya.	Apitong	R. L.	Tang.	Palosapis	W. L.	Guijo	Yakal	Narra	Apitong	R. L.	Tang.	Palo.	W. L.	Guijo	Yakal	Narra
1955																						
July	₱175	₱200	₱200	₱175	₱175	₱175	₱182	₱240	₱245	₱182	₱210	₱305	₱405	₱600	₱220	₱260	₱265	₱200	₱220	₱335	₱435	₱650
August	175	210	210	175	175	175	177	197	220	200	195	330	373	600	205	243	238	212	215	346	450	650
September	165	200	200	165	165	165	176	206	226	186	203	320	376	600	213	241	241	215	199	346	447	650
October	178	210	210	178	175	175	177	200	220	190	190	326	376	600	207	247	247	207	210	245	447	650
November	175	210	210	175	175	175	185	215	227	193	201	339	390	600	210	250	245	210	220	244	450	650
December	175	210	210	175	175	175	181	230	215	195	192	330	375	600	218	250	238	220	217	347	453	650
1956																						
January	180	210	210	180	180	180	200	222	217	205	195	325	428	600	221	249	249	227	221	348	458	650
February	180	210	210	180	180	180	195	218	218	195	195	323	424	650	224	252	252	221	218	249	454	650
March	185	220	220	185	185	185	218	227	220	196	202	331	432	650	225	250	249	220	219	348	452	652
April	185	220	220	185	185	185	195	216	217	202	185	320	425	650	220	247	247	226	215	345	449	650
May	185	220	220	185	185	185	195	216	217	202	185	320	425	650	220	247	247	226	215	345	449	650

Note: The data contained herein are gathered from sources believed to be reliable.

Prepared by MANUEL R. CASTRO
Div. Forest Concessions and Sawmills