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David H. Teem,
Acting Director
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**Weed survey of permanent pastures
in three southern states**

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*Information contained herein is available to all persons
without regard to race, color, sex, or national origin.*

WEED SURVEY OF PERMANENT PASTURES IN THREE SOUTHERN STATES

Gale A. Buchanan, Ellis W. Hauser, Ann S. Causey, and Jim Adams¹

ANNUAL and perennial weeds, representing many botanical families, comprise a major portion of the flora of many permanent pastures throughout the Southern United States. Many species are highly undesirable because of potential toxicity to farm animals, whereas some are highly nutritious and can be utilized as forage. The majority are between these extremes. In developing weed control programs, it is important to have a good understanding of the weeds that occur as well as the degree of their undesirability.

This bulletin is the result of surveys of permanent pastures in selected counties in Alabama, Georgia, and Mississippi. Results are definite for the pastures actually sampled and therefore probably representative of most pastures. These samples were sufficiently detailed to illustrate the diversity of the weed flora and to provide an understanding of some of the important weed problems in these three southern states.

EXPERIMENTAL PROCEDURES

Weed surveys were conducted in randomly selected pastures in Mississippi, Georgia, and Alabama during the summer of 1978. The counties were selected on the basis of their general location in the approximate center of basic soil-geographic regions within each state, see the figure.

Each county selected was considered a survey unit. The survey was coordinated with the extension chairman in each county, at which time the general agricultural and pasture regions of the county were ascertained. Routes of travel were

¹Professor of Agronomy and Soils; Research Agronomist (retired) USDA-ARS, Tifton, Ga.; Instructor of Botany, Plant Pathology, and Microbiology; and Assistant Professor of Agronomy and Soils, respectively.

determined in order to observe respective pastures. Sampling was accomplished by establishing an imaginary line through the apparent longest part of the pasture. Care was taken to avoid individual and isolated stands of weeds. Point surveys consisting of 1 yard square quadrats were taken along this line at 40- to 50-yard intervals. Numbers of individual plants of each weed species present within each quadrat were recorded. Species that were not readily identified were collected for later positive identification.

The data were not amenable to statistical analyses. Thus, the data are presented only as observations based on the survey results.

RESULTS

Occurrence of Weeds by States

A diversity of weed species was found and the number of species was different among the three states, table 1. Sixty-five different species were found in Alabama, 37 in Georgia, and 69 in Mississippi. A total of 107 species was found in the tri-state area.

Only 17 weeds were common to all three states, table 1. These were annual fleabane, bitter sneezeweed, broomsedge, common lambsquarter, common ragweed, curly dock, dogfennel, horsenettle, horseweed, *Mexicantea*, Pennsylvania smartweed, prickly sida, sicklepod, spiny amaranth, spotted spurge, Virginia pepperweed, and woolly croton. Only four weeds—bitter sneezeweed, common ragweed, dogfennel, and horsenettle—were found in 10 percent or more of all pastures sampled in all states. Most weeds found occurred in only one or two states and in 10 percent or fewer of the pastures sampled, table 1.

Weeds frequently occurring in each state (found in 10 percent or more of pastures sampled), regardless of whether they were common to all states, numbered 7, 12, and 13 for Alabama, Georgia, and Mississippi, respectively. In Alabama, these frequently occurring weeds were bitter sneezeweed, blue vervain, common ragweed, dogfennel, horsenettle, prairie croton, and prickly sida. In Georgia, they were bitter sneezeweed, broomsedge, common ragweed, cudweed, curly dock, dogfennel, horseweed, horsenettle, spiny amaranth, Virginia buttonweed, Virginia pepperweed, and yellow woodsorrel. In Mississippi, the most frequently occurring weeds were bitter

TABLE 1. DISTRIBUTION AND PERCENT OCCURRENCE OF WEED SPECIES IN PASTURES OF ALABAMA-GEORGIA-MISSISSIPPI

Common name	Weed Scientific name	Number of weeds				Pct. occurrence		
		Ala.	Ga.	Miss.	Total	Ala.	Ga.	Miss.
1. American black nightshade	<i>Solanum americanum</i>	—	—	6	6	—	—	1
2. American burnweed	<i>Erechtites hieracifolia</i>	4	20	—	24	2	1	—
3. Annual fleabane	<i>Erigeron annuus</i>	2	2	12	16	1	2	3
4. Annual marshelder	<i>Iva annua</i>	174	—	18	192	6	—	1
5. Aster	<i>Aster</i> sp.	21	—	1	22	1	—	1
6. Aster, white heath	<i>Aster pilosus</i>	7	—	—	7	4	—	—
7. Bagpod sesbania	<i>Sesbania vesicaria</i>	2	—	—	2	1	—	—
8. Blackberry	<i>Rubus</i> sp.	22	27	—	49	7	3	—
9. Blackberry, highbush	<i>Rubus argutus</i>	—	—	22	22	—	—	1
10. Bristly starbur	<i>Acanthospermum hispidum</i>	21	—	—	21	1	—	—
11. Broomsedge	<i>Andropogon virginicus</i>	40	303	57	400	5	19	2
12. Buttercup	<i>Ranunculus</i> sp.	1	—	—	1	1	—	—
13. Buttercup, hairy	<i>Ranunculus sardous</i>	—	—	365	365	—	—	14
14. Buttercup, smallflower	<i>Ranunculus abortivus</i>	—	—	4	4	4	—	1
15. Carolina geranium	<i>Geranium carolinianum</i>	—	—	16	16	—	—	8
16. Carolina falsedandelion	<i>Pyrhopappus carolinianus</i>	—	—	27	27	—	—	8
17. Carpetweed	<i>Mollugo verticillata</i>	—	3	4	7	—	3	1
18. Catbriar	<i>Smilax bona-nox</i>	1	—	—	1	1	—	—
19. Cherokee rose	<i>Rosa laevigata</i>	22	—	—	22	3	—	—
20. Cocklebur, common	<i>Xanthium pennsylvanicum</i>	23	—	—	23	3	—	—
21. Cocklebur, common	<i>Xanthium strumarium</i>	—	—	5	5	—	—	2
22. Common chickweed	<i>Stellaria media</i>	—	—	9	9	—	—	5
23. Common lambsquarters	<i>Chenopodium album</i>	7	4	3	14	1	4	1
24. Common persimmon	<i>Diospyros virginiana</i>	1	—	—	1	1	—	—
25. Copperleaf, rhombic	<i>Acalypha rhomboidea</i>	—	18	3	21	—	1	1
26. Copperleaf, slender	<i>Acalypha gracilens</i>	4	—	—	4	2	—	—
27. Copperleaf, Virginia	<i>Acalypha virginica</i>	—	4	—	4	—	1	—
28. Croton, prairietea	<i>Croton monanthogynus</i>	194	31	7	232	11	8	5
29. Croton, tropic	<i>Croton glandulosus</i>	7	—	—	7	4	—	—
30. Croton, woolly	<i>Croton capitatus</i>	18	15	338	371	3	4	30
31. Cudweed	<i>Gnaphalium</i> sp.	—	73	17	90	—	13	1
32. Cudweed, purple	<i>Gnaphalium purpureum</i>	—	—	94	94	—	—	5
33. Dandelion	<i>Taraxacum officinale</i>	—	2	7	9	—	1	4
34. Dock, cluster	<i>Rumex conglomeratus</i>	—	—	7	7	—	—	2
35. Dock, curly	<i>Rumex crispus</i>	6	17	43	66	5	12	15

Continued

TABLE 1 (CONTINUED). DISTRIBUTION AND PERCENT OCCURRENCE OF WEED SPECIES IN PASTURES OF ALABAMA-GEORGIA-MISSISSIPPI

Common name	Weed Scientific name	Number of weeds				Pct. occurrence		
		Ala.	Ga.	Miss.	Total	Ala.	Ga.	Miss.
36. Dogfennel	<i>Eupatorium capillifolium</i>	96	108	283	487	20	18	32
37. Eclipta	<i>Eclipta alba</i>	14	—	—	14	3	—	—
38. Eveningprimrose, cutleaf	<i>Oenothera laciniata</i>	—	—	1	1	—	—	1
39. Eveningprimrose, showy	<i>Oenothera speciosa</i>	1	—	—	1	1	—	—
40. Feverfew	<i>Chrysanthemum parthenium</i>	—	—	3	3	—	—	1
41. Field madder	<i>Sherardia arvensis</i>	—	—	68	68	—	—	1
42. Goldenrod	<i>Solidago</i> sp.	4	—	—	4	1	—	—
43. Grass leaved goldenaster	<i>Heterotheca graminifolia</i>	1	—	—	1	1	—	—
44. Henbit	<i>Lamium amplexicaule</i>	10	—	5	15	1	—	1
45. Horsetweed	<i>Conyza canadensis</i>	95	229	77	401	8	32	19
46. Horsenettle	<i>Solanum carolinense</i>	110	425	201	736	17	43	52
47. Illinois bundleflower	<i>Desmanthus illinoensis</i>	50	—	1	51	5	—	1
48. Ironweed	<i>Vernonia</i> sp.	52	—	—	52	2	—	—
49. Ironweed, tall	<i>Vernonia altissima</i>	—	19	—	19	—	2	—
50. Ironweed, western	<i>Vernonia baldwinii</i>	11	—	—	11	3	—	—
51. Knotweed, tufted	<i>Polygonum aviculare</i>	—	18	28	46	—	—	4
52. Knotweed, tufted	<i>Polygonum caespitosum</i>	3	—	9	12	1	—	4
53. Ladysthumb	<i>Polygonum persicaria</i>	—	—	92	92	—	8	11
54. Maypop passionflower	<i>Passiflora incarnata</i>	—	—	1	1	—	—	1
55. Mexicantea	<i>Chenopodium ambrosioides</i>	3	36	4	43	2	9	2
56. Mock bishopsweed	<i>Ptilimnium capillaceum</i>	—	—	8	8	—	—	3
57. Morningglory, bigroot	<i>Ipomoea pandurata</i>	—	—	3	3	—	—	1
58. Mullein, common	<i>Verbascum thapsus</i>	1	—	—	1	1	—	—
59. None	<i>Phyllanthus carolinensis</i>	10	—	—	10	3	—	—
60. Pigweed, redroot	<i>Amaranthus retroflexus</i>	113	—	24	137	8	—	9
61. Pigweed, smooth	<i>Amaranthus hybridus</i>	4	—	—	4	1	—	—
62. Pink purslane	<i>Portulaca pilosa</i>	—	4	—	4	—	1	—
63. Plantain, blackseed	<i>Plantago rugelii</i>	—	2	10	12	—	1	2
64. Plantain, bracted	<i>Plantago aristata</i>	—	10	—	10	—	2	—
65. Plantain, broadleaf	<i>Plantago major</i>	4	—	29	33	1	—	2
66. Plantain, buckhorn	<i>Plantago lanceolata</i>	—	146	—	146	—	9	—
67. Plantain, paleseed	<i>Plantago virginica</i>	—	—	1	1	—	—	1
68. Poorjoe	<i>Diodia teres</i>	16	—	98	114	3	—	4
69. Ragweed, common	<i>Ambrosia artemisiifolia</i>	298	228	196	722	10	11	24
70. Ragweed, giant	<i>Ambrosia trifida</i>	—	3	1	4	—	1	1

Continued

TABLE 1 (CONTINUED). DISTRIBUTION AND PERCENT OCCURRENCE OF WEED SPECIES IN PASTURES OF ALABAMA-GEORGIA-MISSISSIPPI

Common name	Weed Scientific name	Number of weeds				Pct. occurrence		
		Ala.	Ga.	Miss.	Total	Ala.	Ga.	Miss.
71. Ragweed, lanceleaf	<i>Ambrosia bidentata</i>	—	—	81	81	—	—	7
72. Ragweed, parthenium	<i>Parthenium hysterophorus</i>	9	—	—	9	2	—	—
73. Redberry moonseed	<i>Cocculus carolinus</i>	—	2	—	2	—	1	—
74. Rough sumpweed	<i>Iva ciliata</i>	—	—	32	32	—	—	1
75. Sedge	<i>Carex lurida</i>	—	—	21	21	—	—	1
76. Sedge	<i>Carex retroflexa</i>	—	—	1	1	—	—	1
77. Sicklepod	<i>Cassia obtusifolia</i>	6	55	1	62	2	6	1
78. Sida, arrowleaf	<i>Sida rhombifolia</i>	4	20	—	24	2	1	—
79. Sida, prickly	<i>Sida spinosa</i>	194	31	7	232	11	8	5
80. Smartweed, dotted	<i>Polygonum punctatum</i>	3	—	5	8	1	—	1
81. Smartweed, mild	<i>Polygonum hydropiperoides</i>	1	—	2	3	1	—	2
82. Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>	8	82	18	108	2	6	11
83. Sneezeweed, bitter	<i>Helenium amarum</i>	132	912	1411	2455	14	31	56
84. Sneezeweed, purplehead	<i>Helenium flexuosum</i>	1	—	—	1	1	—	—
85. Southern dewberry	<i>Rubus trivialis</i>	33	—	3	36	6	—	1
86. Sowthistle, annual	<i>Sonchus oleraceus</i>	9	—	—	9	9	—	—
87. Sowthistle, spiny	<i>Sonchus asper</i>	—	—	1	1	—	—	1
88. Spiny amaranth	<i>Amaranthus spinosus</i>	9	182	137	328	6	15	9
89. Spurge, prostrate	<i>Euphorbia humistrata</i>	4	—	3	7	1	—	1
90. Spurge, spotted	<i>Euphorbia maculata</i>	35	—	2	37	3	—	1
91. Spurge, spotted	<i>Euphorbia supina</i>	20	23	4	47	3	5	1
92. St. Johnswort, common	<i>Hypericum perforatum</i>	1	—	—	1	1	—	—
93. Stinkweed	<i>Pluchea camphorata</i>	5	—	—	5	1	—	—
94. Thistle	<i>Carduus carolinianus</i>	—	—	20	20	—	—	4
95. Threeawn	<i>Aristida</i> sp.	—	—	10	10	—	—	2
96. Toadrush	<i>Juncus bufonius</i>	20	—	—	20	3	—	—
97. Trumpet creeper	<i>Campsis radicans</i>	—	6	—	6	—	3	—
98. Vervain, blue	<i>Verbena hastata</i>	17	—	7	24	10	—	5
99. Vervain, tall	<i>Verbena bonariensis</i>	—	—	2	2	—	—	1
100. Vervain, white	<i>Verbena urticifolia</i>	—	—	12	12	—	—	3
101. Virginia buttonweed	<i>Diodia virginiana</i>	—	86	42	128	—	12	13
102. Virginia pepperweed	<i>Lepidium virginicum</i>	22	150	23	195	3	19	11
103. Wild carrot	<i>Daucus carota</i>	—	—	1	1	—	—	1
104. Woodsorrel	<i>Oxalis</i> sp.	3	—	90	93	1	—	16
105. Woodsorrel, yellow	<i>Oxalis stricta</i>	4	59	—	63	1	15	—
106. Yellow-eyed grass	<i>Xyris ambigua</i>	1	—	—	1	1	—	—
107. Yellow-eyed grass	<i>Xyris stricta</i>	1	—	—	1	1	—	—

sneezeweed, common ragweed, curly dock, dogfennel, hairy buttercup, horsenettle, horseweed, ladythumb, Pennsylvania smartweed, Virginia buttonweed, Virginia pepperweed, and woolly croton.

Horsenettle, a difficult-to-control perennial, was the most frequently encountered weed, with percentage occurrences of 17 percent, 43 percent, and 52 percent in pastures in Alabama, Georgia, and Mississippi, respectively. Bitter sneezeweed had percentage occurrences of 14, 31, and 56 percent in Alabama, Georgia, and Mississippi, respectively. It also occurred in higher numbers, where present, than any other weed. Other weeds found in fairly large numbers in all three states were dogfennel and horseweed.

Occurrence of Weeds within States

Bitter sneezeweed and horsenettle were the most commonly occurring weeds in Alabama—they were found in all six counties, table 2. Occurring in four of the six Alabama counties were: blue vervain, broomsedge, common ragweed, curly dock, dogfennel, prickly sida, redroot pigweed, and annual sowthistle. A few other weeds, such as Illinois bundleflower and marshelder, occurred in large numbers but only in one or two counties. In general, most of the 65 species found in Alabama pastures did not occur in large numbers or in more than one to three of the six counties sampled.

In Georgia, bitter sneezeweed, horsenettle, and horseweed occurred in each of the seven counties sampled, table 3. Bitter sneezeweed was most numerous, followed by horsenettle, and then horseweed. A few other weeds, such as broomsedge, buckhorn plantain, and common ragweed, occurred in large numbers, but only in one to three counties. Most weeds in Georgia occurred in low numbers and/or in less than a majority of the counties sampled.

Dogfennel, horsenettle, spiny amaranth, and woodsorrel were the only weeds found in each of the five Mississippi counties, table 4. Horsenettle was more uniformly distributed than dogfennel. Bitter sneezeweed occurred in four counties and in large numbers in three counties. Other weeds found in four of the five counties were Carolina falsedandelion, common ragweed, curly dock, horseweed, Virginia buttonweed, Virginia pepperweed, and woolly croton. Although a greater diversity of weeds (69) was found in Mississippi, the general patterns of distribution and frequency were similar to those found in Alabama and Georgia.

TABLE 2. DISTRIBUTION AND NUMBER OF WEED SPECIES IN PASTURES OF SIX ALABAMA COUNTIES

Name of weed	Number of weeds by county					
	Baldwin	Hale	Houston	Marengo	Monroe	Montgomery
1. American burnweed	—	—	—	4	—	—
2. Annual fleabane	—	—	—	2	—	—
3. Annual marshelder	—	102	—	70	—	2
4. Aster	—	—	4	17	—	—
5. Bagpod sesbania	—	—	2	—	—	—
6. Blackberry	8	4	—	—	5	5
7. Bristly starbur	—	—	21	—	—	—
8. Broomsedge	—	10	—	19	1	10
9. Buttercup	—	—	—	—	—	1
10. Catbriar	—	—	—	1	—	—
11. Cherokee rose	—	1	—	21	—	—
12. Cocklebur, common	—	—	—	1	—	22
13. Common lambsquarters	—	—	—	7	—	—
14. Common persimmon	—	—	—	1	—	—
15. Copperleaf, slender	—	—	—	3	—	—
16. Croton, prairietea	—	—	—	20	—	—
17. Croton, tropic	—	—	—	—	2	5
18. Croton, woolly	—	—	—	—	16	2
19. Dock, curly	—	—	2	1	2	1
20. Dogfennel	1	—	29	—	48	18
21. Eclipta	—	—	—	—	—	14
22. Eveningprimrose, showy	—	—	—	—	—	1
23. Goldenrod	4	—	—	—	—	—
24. Grass-leaved goldenaster	1	—	—	—	—	—
25. Henbit	—	—	—	10	—	—
26. Horsenettle	4	5	39	44	11	7
27. Horseweed	64	—	23	8	—	—
28. Illinois bundleflower	—	—	—	50	—	—
29. Ironweed	—	—	—	—	52	—
30. Ironweed, western	—	—	—	—	—	11
31. Mexicantea	—	—	3	—	—	—
32. Mullein, common	—	—	—	—	1	—

Continued

TABLE 2 (CONTINUED). DISTRIBUTION AND NUMBER OF WEED SPECIES IN PASTURES OF SIX ALABAMA COUNTIES

Name of weed	Number of weeds by county					
	Baldwin	Hale	Houston	Marengo	Monroe	Montgomery
33. <i>Phyllanthus caroliniensis</i>	8	—	—	2	—	—
34. Pigweed, redroot	—	—	—	1	—	—
35. Pigweed, smooth	—	—	4	—	—	—
36. Plantain, broadleaf	—	4	—	—	—	—
37. <i>Polygonum caespitosum</i>	3	—	—	—	—	—
38. Poorjoe	—	—	—	16	—	—
39. Ragweed, common	248	17	—	31	2	—
40. Ragweed, parthenium	—	8	—	1	—	—
41. Sicklepod	—	—	—	1	5	—
42. Sida, arrowleaf	8	—	—	—	—	—
43. Sida, prickly	—	15	5	173	—	—
44. Smartweed, dotted	—	—	3	—	—	—
45. Smartweed, mild	1	—	—	—	—	—
46. Smartweed, Pennsylvania	3	—	—	5	—	—
47. Sneezeweed, bitter	27	9	18	17	33	28
48. Sneezeweed, purplehead	—	—	—	1	—	—
49. Sowthistle, annual	—	1	—	1	1	6
50. Spiny amaranth	—	—	9	—	—	—
51. Spurge, prostrate	4	10	—	10	—	—
52. Spurge, spotted	—	—	—	35	—	—
53. St. Johnswort, common	1	—	—	—	—	—
54. Stinkweed	—	—	—	5	—	—
55. Toadrush	20	—	—	—	—	—
56. Vervain, blue	—	2	3	1	—	11
57. Virginia pepperweed	1	—	—	—	—	—
58. Woodsorrel	—	—	3	—	—	—
59. Woodsorrel, yellow	—	—	—	—	4	—
60. <i>Xyris ambigua</i>	1	—	—	—	—	—
61. <i>Xyris stricta</i>	1	—	—	—	—	—

TABLE 3. DISTRIBUTION AND NUMBER OF WEED SPECIES IN PASTURES OF SEVEN GEORGIA COUNTIES

Name of weed	Number of weeds by county						
	Bartow	Butts	Jenkins	Laurens	Liberty	Meriwether	Wilkes
1. American burnweed	—	20	—	—	—	—	—
2. Annual fleabane	2	—	—	—	—	—	—
3. Aster, white heath	2	—	—	—	—	5	—
4. Blackberry	—	25	—	—	—	2	—
5. Broomsedge	39	239	—	—	6	6	13
6. Carpetweed	1	—	—	—	1	1	—
7. Common lambsquarters	1	1	—	2	—	—	—
8. Copperleaf, rhombic	18	—	—	—	—	—	—
9. Copperleaf, Virginia	—	—	—	—	—	4	—
10. Croton, woolly	—	14	—	1	—	—	—
11. Cudweed	4	4	—	—	9	49	7
12. Dandelion	—	—	—	—	—	2	—
13. Dock, curly	1	5	1	—	—	9	1
14. Dogfennel	—	9	11	12	5	43	28
15. Horsenettle	92	39	3	113	10	167	16
16. Horsetweed	69	5	29	10	50	47	28
17. Ironweed, tall	—	19	—	—	—	—	—
18. Knotweed, prostrate	15	1	—	1	—	1	—
19. Mexicantea	28	1	—	—	—	2	5
20. Pink purslane	—	—	—	—	4	—	—
21. Plantain, blackseed	2	—	—	—	—	—	—
22. Plantain, bracted	3	—	—	—	—	7	—
23. Plantain, buckhorn	36	3	—	—	—	107	—
24. Ragweed, common	64	104	1	1	—	18	40
25. Ragweed, giant	—	—	—	—	—	3	—
26. Redberry moonseed	—	—	2	—	—	—	—
27. Sicklepod	—	41	—	—	—	14	—
28. Sida, arrowleaf	—	—	—	13	—	13	—
29. Sida, prickly	—	4	13	—	—	—	14
30. Smartweed, Pennsylvania	24	—	—	—	—	58	—
31. Sneezeweed, bitter	397	163	14	4	2	127	205
32. Spiny amaranth	6	—	87	22	22	16	29
33. Spurge, prostrate	9	2	—	—	—	12	—
34. Trumpet creeper	6	—	—	—	—	—	—
35. Virginia buttonweed	17	31	4	—	15	17	2
36. Virginia pepperweed	68	11	—	1	—	30	40
37. Woodsorrel, yellow	25	24	—	3	—	7	—

TABLE 4. DISTRIBUTION AND NUMBER OF WEED SPECIES IN PASTURES OF FIVE MISSISSIPPI COUNTIES

Name of weed	Number of weeds by county				
	De Soto	Jefferson	Jones	Panola	Pontotoc
1. American black nightshade	6	—	—	—	—
2. Annual fleabane	—	—	—	—	12
3. Aster	—	—	—	3	4
4. Blackberry, highbush	—	22	—	—	—
5. Broomsedge	—	—	—	—	57
6. Buttercup, hairy	2	12	348	—	10
7. Buttercup, smallflower	—	—	4	—	—
8. <i>Carex lurida</i>	—	21	—	—	—
9. <i>Carex retroflexa</i>	1	—	—	—	—
10. Carolina faldandelion	4	3	—	2	18
11. Carolina geranium	7	5	4	—	—
12. Carpetweed	4	—	—	—	—
13. Cocklebur, common	5	—	—	—	—
14. Common chickweed	—	—	52	—	2
15. Common lambsquarters	3	—	—	—	—
16. Copperleaf, rhombic	—	—	—	—	3
17. Croton, woolly	49	20	—	258	11
18. Cudweed	—	—	17	—	—
19. Cudweed, purple	3	91	—	—	—
20. Dandelion	1	1	—	—	5
21. Dock, cluster	—	7	—	—	—
22. Dock, curly	6	8	—	27	2
23. Dogfennel	1	219	52	27	17
24. Eveningprimrose, cutleaf	—	1	—	—	—
25. Feverfew	—	—	3	—	—
26. Field madder	—	68	—	—	—
27. Henbit	—	—	5	—	—
28. Horsenettle	45	77	14	20	45
29. Horseweed	4	1	—	59	13
30. Illinois bundleflower	—	—	—	1	—
31. Knotweed, prostrate	—	—	23	—	5
32. Knotweed, tufted	4	5	—	—	—
33. Ladysthumb	14	28	—	—	50

Continued to page 16



1. Horseweed
Conyza canadensis



2. Broomsedge
Andropogon virginicus



3. Common lambsquarters
Chenopodium album



4. Spiny amaranth
Amaranthus spinosus



5. Sicklepod
Cassia obtusifolia



6. Dogfennel
Eupatorium capillifolium



7. Sida, prickly
Sida spinosa



8. Horsenettle
Solanum carolinense



9. Smartweed, Pennsylvania
Polygonum pennsylvanicum



10. Ragweed, common
Ambrosia artemisiifolia



11. Croton, woolly
Croton capitatus



12. Annual fleabane
Erigeron annuus



13. Virginia pepperweed
Lepidium virginicum



14. Spurge, spotted
Euphorbia supina



15. Goldenrod
Solidago sp.



16. Virginia buttonweed
Diodia virginiana



17. Dock, curly
Rumex crispus



18. Sneezeweed, bitter
Helenium amarum

TABLE 4 (CONTINUED). DISTRIBUTION AND NUMBER OF WEED SPECIES IN PASTURES OF FIVE MISSISSIPPI COUNTIES

Name of weed	Number of weeds by county				
	De Soto	Jefferson	Jones	Panola	Pontotoc
34. Marshelder	18	—	—	—	—
35. Maypop passionflower	—	1	—	—	—
36. Mexicantea	—	—	—	—	4
37. Mock bishopsweed	—	—	—	—	8
38. Pigweed, redroot	3	—	—	13	8
39. Plantain, bracted	—	10	—	—	—
40. Plantain, broadleaf	11	—	—	—	18
41. Plantain, paleseed	—	—	—	—	1
42. Poorjoe	—	—	—	98	—
43. Ragweed, common	63	17	—	37	79
44. Ragweed, giant	—	1	—	—	—
45. Ragweed, lanceleaf	79	—	—	—	1
46. Rough sumpweed	—	—	—	32	—
47. Sicklepod	—	—	—	—	1
48. Sida, arrowleaf	5	32	—	—	—
49. Sida, prickly	1	1	—	4	—
50. Smartweed, dotted	5	—	—	—	—
51. Smartweed, mild	—	—	—	—	2
52. Smartweed, Pennsylvania	—	—	—	12	6
53. Sneezeweed, bitter	393	748	—	227	43
54. Spurge, prostrate	—	—	3	4	—
55. Spurge, spotted	—	2	—	—	—
56. Southern dewberry	—	3	—	—	—
57. Sowthistle, spiny	—	—	—	—	1
58. Spiny amaranth	6	3	127	1	7
59. Thistle	—	19	—	—	1
60. Threeawn	—	10	—	—	—
61. Vervain, blue	—	10	—	—	—
62. Vervain, tall	—	2	—	—	—
63. Vervain, white	10	—	—	2	—
64. Virginia buttonweed	1	18	—	1	22
65. Virginia pepperweed	16	—	1	1	5
66. Wild carrot	—	—	—	1	—
67. Woodsorrel	9	30	45	2	4

Occurrence of Weeds Within Alabama Counties

Data from four pastures in each county sampled in Alabama are shown in tables 5, 6, and 7. No weed was common to all pastures sampled nor did weed species usually occur in all pastures sampled in a county. The exception was horsenettle, which occurred in each of the four pastures sampled from Houston County.

No two Alabama pastures had the same botanical composition. The extreme diversity among pastures was somewhat unexpected. Weeds which were present in large numbers (over 10) in at least one sample included marshelder in Hale County, blackberry and prickly sida in Marengo County, dogfennel in Monroe County, and eclipta in Montgomery County, tables 5, 6, and 7. Horsenettle and bitter sneezeweed were the most widely distributed weeds, occurring in 9 of the 16 pastures sampled. Most other weed species occurred in one to four pastures.

Occurrence of Weeds Within Georgia Counties

Horsenettle occurred in 16 of the 28 pastures sampled, tables 8-11. Bitter sneezeweed occurred in 14 of 28. No other weeds appeared in 50 percent or more of the sampled pastures. Other weeds which occurred in numbers of 10 or higher in at least one pasture were dogfennel, horseweed, Pennsylvania smartweed, and spiny amaranth. Except for horsenettle and bitter sneezeweed, most species occurred in small numbers and with low frequencies. As in Alabama, no two pastures were identical in weed composition.

Occurrence of Weeds Within Mississippi Counties

Horsenettle and bitter sneezeweed occurred most frequently, with horsenettle in 14 of 20 pastures and bitter sneezeweed in 11 of 20. Dogfennel was found in 9 of 20 pastures sampled. More species were found in numbers of 10 or more per sample than in Alabama and Georgia. These included blackberry, broomsedge, Carolina falsedandelion, common chickweed, common ragweed, cudweed, dogfennel, horseweed, ladythumb, lanceleaf ragweed, spiny amaranth, woodsorrel, and woolly croton, tables 8-11. Again, no two pastures had the same botanical composition.

TABLE 5. CHARACTERIZATION OF FOUR PASTURES EACH IN BALDWIN AND HOUSTON COUNTIES, ALABAMA

Weed species	Number of weeds in four selected Baldwin County pastures ¹				Number of weeds in four selected Houston County pastures ¹			
	Ba&CB	Ba&CB	CB	Ba&CB	Ba	Ba&CB	Ba	Ba
1. Aster	—	—	—	—	1	—	—	—
2. Blackberry	—	8	—	—	—	—	—	—
3. Dogfennel	—	—	—	—	—	—	1	—
4. Goldenrod	—	—	—	1	—	—	—	—
5. Horsenettle	4	—	—	—	3	4	3	2
6. Horseweed	—	6	4	3	—	—	—	—
7. Knotweed, tufted	—	—	3	—	—	—	—	—
8. Ragweed, common	—	—	—	10	—	—	—	—
9. Sida, prickly	—	—	—	—	2	—	—	—
10. Sneezeweed, bitter	1	1	—	2	—	1	3	—
11. Spiny amaranth	—	—	—	—	—	—	2	—
12. Spurge, prostrate	—	—	—	1	—	—	—	—
13. St. Johnswort	—	1	—	—	—	—	—	—
14. Vervain, blue	—	—	—	—	—	1	—	—
Pasture crop ² :	Ba&CB	Ba&CB	CB	Ba&CB	Ba	Ba&CB	Ba	Ba
pH:	5.3	5.3	5.2	5.5	5.5	5.2	5.5	5.7
Soil group ³ :	S	S	S	L	L	HC	L	S

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: Ba is bahia grass; CB is Coastal bermudagrass.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

TABLE 6. CHARACTERIZATION OF FOUR PASTURES EACH IN HALE AND MARENGO COUNTIES, ALABAMA

Weed species	Number of weeds in four selected Hale County pastures ¹				Number of weeds in Marengo County pastures ¹			
1. American burnweed	—	—	—	—	—	—	—	2
2. Blackberry	—	—	—	—	—	—	17	—
3. Broomsedge	—	1	3	—	—	—	4	—
4. Common lambsquarters	—	7	15	3	—	—	7	—
5. Croton, prairietea	3	—	—	2	17	—	—	6
6. Horsenettle	4	—	—	—	—	9	—	3
7. Marshelder	—	—	—	—	5	8	—	—
8. Ragweed, common	—	—	—	2	1	9	—	—
9. Sida, prickly	—	—	—	—	—	—	—	2
10. Spurge, prostrate	—	—	—	—	—	—	—	2
Pasture crop ² :	F	Ba&D	Ba&D	CB&D	F&D	CB,D&F	Ba&D	Ba&D
pH:	NA	NA	NA	NA	7.7	7.1	6.8	7.8
Soil group ³ :	NA	NA	NA	NA	HC	HC	HC	HC

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: Ba is bahia grass; CB is Coastal bermudagrass; D is dallisgrass; F is fescue.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand; NA is not available.

TABLE 7. CHARACTERIZATION OF FOUR PASTURES EACH IN MONROE AND MONTGOMERY COUNTIES, ALABAMA

Weed species	Number of weeds in four selected Monroe County pastures ¹				Number of weeds in four selected Montgomery County pastures ¹			
1. Blackberry	—	4	—	—	3	—	—	—
2. Broomsedge	—	1	—	—	—	—	—	2
3. Croton, woolly	10	—	—	—	—	—	—	—
4. Dogfennel	—	20	—	1	3	—	—	—
5. Eclipta	—	—	—	—	12	—	—	—
6. Horsenettle	—	—	3	—	—	—	1	—
7. Ironweed	—	3	—	—	—	—	—	—
8. Marshelder	—	—	—	—	—	—	2	—
9. Pigweed, redroot	6	—	3	1	—	—	—	—
10. Ragweed, common	—	2	—	—	—	—	—	—
11. Sicklepod	1	—	—	—	—	—	—	—
12. Sneezeweed, bitter	—	1	1	2	3	—	—	—
13. Vervain, blue	—	—	—	—	—	1	—	—
Pasture crop ² :	CB	CRG	CB	CB	CB	Ba&D	CB	Ba&D
pH:	5.4	6.0	NA	5.1	7.7	5.6	7.7	7.4
Soil group ³ :	L	L	NA	L	HC	HC	HC	HC

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: CB is Coastal bermudagrass; CRG is crabgrass; D is dallisgrass.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay, S is sand. NA is not available.

TABLE 8. CHARACTERIZATION OF FOUR PASTURES EACH IN BARTOW AND BUTTS COUNTIES, GEORGIA

Weed species	Number of weeds in four selected Bartow County pastures ¹				Number of weeds in four selected Butts County pastures ¹			
	—	—	—	—	—	—	—	—
1. Broomsedge	—	—	—	—	—	—	10	—
2. Cudweed	—	2	—	—	—	—	—	—
3. Dock, curly	—	—	—	—	1	1	—	1
4. Horsenettle	3	5	1	2	—	4	—	2
5. Mexicantea	—	—	1	—	—	—	—	—
6. Ragweed, common	—	—	1	1	—	—	—	—
7. Sicklepod	1	6	—	—	—	—	—	—
8. Smartweed, Pennsylvania	—	—	—	2	—	—	—	—
9. Sneezeweed, bitter	37	1	1	—	19	—	16	—
10. Spurge, prostrate	—	—	—	—	1	—	—	—
11. Virginia buttonweed	2	—	—	—	—	—	—	—
12. Virginia pepperweed	7	—	—	—	—	—	—	—
13. Woodsorrel, yellow	1	—	1	—	—	6	—	—
Pasture crop ² :	CB	F	CB&F	F	CB&G	CB&F	Ba	CB&F
pH:	6.1	5.8	5.8	5.9	6.6	7.1	7.0	6.6
Soil group ³ :	L	HC	HC	HC	L	L	HC	HC

¹Number of weeds: the total from all subsamples within each pasture.

²Pasture crop: CB is Coastal bermudagrass; Ba is bahiagrass; F is fescue.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

TABLE 9. CHARACTERIZATION OF FOUR PASTURES EACH IN JENKINS AND LAURENS COUNTIES, GEORGIA

Weed species	Number of weeds in four selected Jenkins County pastures ¹				Number of weeds in four selected Laurens County pastures ¹			
	—	1	—	—	—	1	—	—
1. Common lambsquarters	—	1	—	—	—	1	—	—
2. Dock, curly	—	1	—	—	—	—	—	—
3. Dogfennel	—	—	—	—	1	—	3	—
4. Horsesettle	—	—	1	2	20	—	—	—
5. Horseweed	4	—	1	—	—	—	3	—
6. Redberry moonseed	—	—	2	—	—	—	—	—
7. Sida, prickly	—	—	3	1	—	—	—	—
8. Sneezeweed, bitter	—	3	—	—	—	4	—	—
9. Spiny amaranth	—	—	3	10	—	4	—	4
10. Virginia buttonweed	3	—	—	1	—	—	—	—
11. Woodsorrel, yellow	—	—	—	3	—	—	—	—
Pasture crop ² :	CB	Ba	CB	CB	CB	CB	CB	CB
pH:	5.8	6.7	5.6	7.5	6.2	5.9	5.8	5.8
Soil group ³ :	S	L	S	L	HC	S	L	S

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: CB is Coastal bermudagrass; Ba is bahiagrass.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

TABLE 10. CHARACTERIZATION OF FOUR PASTURES EACH IN LIBERTY AND MERIWETHER COUNTIES, GEORGIA

Weed species	Number of weeds in four selected Liberty County pastures ¹				Number of weeds in four selected Meriwether County pastures ¹			
	—	—	1	—	—	—	—	—
1. Carpetweed	—	—	1	—	—	—	—	—
2. Cudweed	—	—	—	2	—	3	1	—
3. Dock, curly	—	—	—	—	1	1	3	1
4. Dogfennel	1	1	—	—	2	4	—	—
5. Horsenettle	2	—	8	—	20	5	2	14
6. Horseweed	—	3	—	13	—	4	—	—
7. Knorweed, prostrate	—	—	—	—	—	—	—	1
8. Ragweed, common	—	—	—	—	—	2	—	—
9. Smartweed, Pennsylvania	—	—	—	—	14	—	—	—
10. Sneezeweed, bitter	—	1	—	—	1	5	10	—
11. Virginia buttonweed	—	—	—	3	—	—	—	—
12. Virginia pepperweed	—	—	—	—	—	1	—	4
Pasture crop ² :	CB	Ba&CB	CB	Ba	CB&F	F	CB	CB
pH:	6.1	5.4	5.7	5.4	5.7	5.7	5.7	6.2
Soil group ³ :	HC	S	L	S	L	L	HC	HC

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: CB is Coastal bermudagrass; Ba is bahiagrass; F is fescue.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

TABLE 11. CHARACTERIZATION OF FOUR PASTURES IN WILKES COUNTY, GEORGIA

Weed species	Number of weeds in Wilkes County pastures ¹			
	CB&S	CB&F	CB&F	CB
1. Blackberry	—	2	—	—
2. Broomsedge	—	3	4	—
3. Cudweed	1	—	—	—
4. Dock, curly	1	—	—	—
5. Dogfennel	—	10	—	5
6. Horsenettle	—	—	—	4
7. Horseweed	—	—	—	25
8. Mexicantea	—	3	2	—
9. Ragweed, common	3	8	3	—
10. Sida, prickly	2	—	—	—
11. Sneezeweed, bitter	25	51	—	17
12. Spiny amaranth	—	6	4	1
13. Virginia pepperweed	—	—	—	4
Pasture crop ² :	CB&S	CB&F	CB&F	CB
pH:		Not Available		
Soil group:		Not Available		

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: CB is Coastal bermudagrass; F is fescue; S is sericea lespedeza.

EVALUATION OF OTHER FACTORS STUDIED

In none of the three states was there any obvious correlation between the occurrence of weed species and the pasture crop, pH or soil group, tables 5-14.

DISCUSSION

The most widely distributed and frequently occurring weeds in tri-state area pastures were horsenettle and bitter sneezeweed. The prevalence of horsenettle is not surprising, since it is a vigorous perennial that reproduces by both seed and root. It has been documented that horsenettle can spread from pastures to crops such as peanuts, corn, and cotton. Over the years, chemical methods for controlling horsenettle have been only partially successful even when augmented with cultural procedures such as timely mowing. Basic and applied research, involving biological, chemical, and cultural methods, is needed. A coordinated regional approach would be the most effective.

Bitter sneezeweed is an annual weed which is amenable to conventional control methods, especially if timely application of herbicides is included. Bitter sneezeweed is a prolific seed producer; therefore, prevention of seed production is an important component of any control program.

Some of the other weeds found in the survey, such as eclipta, are not easily controlled and may require specialized research, especially if the frequency of their occurrence increases.

TABLE 12. CHARACTERIZATION OF FOUR PASTURES EACH IN DE SOTO AND JEFFERSON COUNTIES, MISSISSIPPI

Weed species	Number of weeds in De Soto County pastures ¹				Number of weeds in Jefferson County pastures ¹			
	6	8	10	13	2	6	9	19
1. Blackberry	—	—	—	—	22	—	—	—
2. <i>Carex lurida</i>	—	—	—	—	1	—	—	—
3. Carolina faldsedanion	—	4	—	—	—	—	—	—
4. Croton, woolly	—	—	2	1	—	—	—	—
5. Cudweed, purple	—	—	—	—	—	—	—	19
6. Dock, cluster	—	—	—	—	6	—	—	—
7. Dogfennel	—	—	—	—	1	32	5	2
8. Horsenettle	4	3	1	—	14	—	1	2
9. Horseweed	—	3	—	—	—	1	—	—
10. Plantain, bracted	—	—	—	—	—	2	—	—
11. Ragweed, common	—	44	—	—	9	—	1	—
12. Ragweed, giant	—	—	—	—	1	—	—	—
13. Ragweed, lanceleaf	—	8	17	—	—	—	—	—
14. Sneezeweed, bitter	—	41	1	86	—	387	22	5
15. Vervain, white	4	—	—	—	—	—	—	—
16. Virginia pepperweed	—	3	—	—	—	—	—	—
17. Woodsorrel	—	1	—	—	1	—	—	—
Pasture crop ² :	Ba	Ba	CB	CB	NA	NA	Ba	CB
pH:	6.2	5.6	6.6	6.3	5.6	5.3	5.7	6.1
Soil group ³ :	HC	HC	HC	HC	HC	HC	HC	HC

¹Number of weeds: total from all subsamples within each pasture by pasture number.

²Pasture crop: Ba is bahiagrass; CB is Coastal bermudagrass; NA is not available.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

TABLE 13. CHARACTERIZATION OF FOUR PASTURES EACH IN JONES AND PANOLA COUNTIES, MISSISSIPPI

Weed species	Number of weeds in four selected Jones County pastures ¹				Number of weeds in four selected Panola County pastures ¹			
1. Buttercup, hairy	44	—	—	—	—	—	—	—
2. Carolina geranium	—	1	—	—	—	—	—	—
3. Common chickweed	—	50	—	—	—	—	—	—
4. Croton, woolly	—	—	—	—	3	19	3	—
5. Cudweed	—	17	—	—	—	—	—	—
6. Dock, curly	—	—	—	—	—	2	—	—
7. Dogfennel	10	11	—	—	—	—	7	1
8. Feverfew	3	—	—	—	—	—	—	—
9. Horsenettle	5	—	3	1	—	2	7	—
10. Horsetweed	—	—	—	—	1	—	—	37
11. Poorjoe	—	—	—	—	3	—	1	—
12. Ragweed, common	—	—	—	—	7	—	—	—
13. Sida, prickly	—	—	—	—	—	2	—	—
14. Smartweed, Pennsylvania	—	—	—	—	—	—	2	—
15. Sneezeweed, bitter	—	—	—	—	7	6	6	—
16. Spiny amaranth	—	40	—	—	—	—	—	—
17. Spurge, prostrate	1	—	—	—	—	—	—	—
18. Woodsorrel	3	18	29	—	—	—	—	—
Pasture crop ² :	NA	NA	NA	Ba	CB	CB	CB	CB
pH:	5.8	5.6	5.7	5.1	5.0	5.8	5.4	6.2
Soil group ³ :	HC	L	L	L	HC	HC	L	HC

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: Ba is bahiagrass; CB is Coastal bermudagrass; NA is not available.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

TABLE 14. CHARACTERIZATION OF FOUR PASTURES IN PONTOTOC COUNTY, MISSISSIPPI

Weed Species	Number of weeds in four selected Pontotoc County pastures ¹			
1. Annual fleabane	—	3	2	—
2. Broomsedge	12	—	—	—
3. Buttercup, hairy	4	—	—	—
4. Carolina faldandelion	—	15	1	—
5. Croton, woolly	—	1	—	—
6. Dandelion	1	—	—	—
7. Dogfennel	—	—	4	—
8. Horsenettle	—	1	18	1
9. Horsetweed	—	—	2	2
10. Ladysthumb	36	—	—	—
11. Mock bishopweed	—	2	4	2
12. Ragweed, common	1	1	—	—
13. Smartweed, Pennsylvania	—	—	—	6
14. Sneezeweed, bitter	—	4	—	1
15. Spiny amaranth	—	—	1	—
16. Virginia buttonweed	1	1	8 ¹	—
Pasture crop ² :	Ba	Ba	Ba	CB
pH:	6.3	4.5	5.8	5.6
Soil group ³ :	HC	HC	HC	HC

¹Number of weeds: total from all subsamples within each pasture.

²Pasture crop: Ba is bahiagrass; CB is Coastal bermudagrass.

³Soil group: C is clay; HC is heavy clay; L is loam and light clay; S is sand.

Other annual weeds, such as common ragweed, are highly susceptible to either chemical or cultural control. Still others, such as broomsedge, can be partially controlled by increasing soil fertility levels, improving pasture management (such as timely mowings), or by both procedures.

The authors realize that an intensive survey of weeds in each county within the tri-state area would yield different results than those reported herein. Undoubtedly, additional species would be found, but it is believed that the patterns of distribution and frequency of occurrence would be similar to those described. The diversity that exists among states and counties and within counties may well extend to the unsurveyed counties within the three states. Based on this, horsenettle and bitter sneezeweed are the most widespread pasture weeds in the tri-state area.

SUMMARY AND CONCLUSIONS

A survey of 299 pastures, to determine the distribution and the frequency of occurrence of weed species, was conducted in Alabama, Georgia, and Mississippi. A total of 107 weed species was found in the tri-state area with 65 species occurring in Alabama, 37 species in Georgia, and 69 species in Mississippi. Only 16 percent of the weed species found were common to all three states, thus illustrating the diversity of weed populations.

Horsenettle, a difficult-to-control perennial, was one of the most frequently encountered weeds with percentage occurrences of 17, 43, and 52 in Alabama, Georgia, and Mississippi pastures, respectively. Because horsenettle is widespread in pastures and is capable of infesting cropland, intensive basic and applied research for the control of this perennial weed would be highly worthwhile. In the survey, bitter sneezeweed was the most frequently occurring weed. Other weeds found in fairly large numbers in all three states were broomsedge and horseweed.

The diversity of pasture weed populations observed among states was also evident among counties and among pastures within counties. No two pastures sampled contained identical weed species composition; furthermore, most weeds found occurred in only one or two states and in 10 percent or fewer of the pastures sampled.