

1 JOHN D. MILLER^{1/} and CHARLES R. DRAKE^{2/}

2 USDA-SEA-AR, Agronomy Department^{1/} and Plant Pathology and Physiology
3 Department^{2/}, Virginia Polytechnic Institute and State University,
4 Blacksburg, Virginia 24061

5 --BIG TREFOIL NATURALIZED IN TIDEWATER VIRGINIA

6 Naturalized stands of big trefoil, Lotus uliginosus Schkuhr, have
7 been identified at Fort Eustis, Virginia, over a considerable part of this
8 military base located just northwest of Newport News on the James River.
9 The first report of this stand was made just after World War II by Dr.
10 William Giles to Paul R. Henson, former Investigation Leader, Special
11 Purpose Legumes, USDA-ARS (personal communication). Dr. Giles reported
12 that the species was widespread on the rifle range area located on the
13 southwest corner of the reservation. Mr. Henson visited the base in the
14 early 1950's but did not collect seed. We inspected this base in June
15 1958 in order to collect seed of this species for possible use in our
16 breeding program. At that time, big trefoil was widespread on the golf
17 course and in adjacent areas including Felkner Army Airfield. Plants
18 were growing within inches of water standing in ditches or streams. This
19 water appeared to be fresh or only slightly brackish. On a return visit
20 on June 21, 1978, the species appeared to have spread considerably.

21 Big trefoil plants were noted for a distance of 600 feet or more
22 along the James River at about 10 or 12 feet above the water level.
23 The big trefoil was growing in close association with a vetch, serecia
24 lespedeza, white clover and miscellaneous grasses. In a nearby ditch,
25 considerable big trefoil was growing with reeds and other marsh species.
26 It was also present on the ditch banks. Big trefoil was abundant along
27 the entire length of Back River road leading from the James River toward

1 the base golf course and Felkner Army Airfield where the species was
2 found in 1958. On the golf course, big trefoil was scattered especially
3 on the rough but also over most of the fairways and along adjacent lower
4 wooded areas. It comprised a considerable percentage of the total
5 vegetation, in places being mixed with lespedeza, white clover and
6 grasses including bluegrass and tall fescue. The species was also
7 abundant along Mulberry Island road into the restricted rifle range
8 area where it was originally reported by Dr. Giles. Access to the rifle
9 range was not feasible due to military use.

10 Big trefoil was found growing into the edge of water along Mulberry
11 Island road, the road leading to nearby Felkner Army Airfield. Typical
12 plants were 18 to 30 in in height with no disease noted. The species
13 was noted growing in a swamp adjacent to the airfield. The airfield
14 had scattered plants around the buildings. A search of other parts of
15 the base revealed only scattered spots of big trefoil. None was found
16 at the Warwick River pier on the southeast corner of the post. However,
17 on Wilson Avenue near the pier, big trefoil occurred in places. It was
18 growing abundantly in shaded areas along Stillwell Street in a higher
19 area in the northeast corner of the post. Plants were later maturing
20 than in other areas and had produced little seed.

21 Samples taken for herbarium purposes became too dry and were not
22 definitive although both of the writers and others earlier were very
23 familiar with the species and had no difficulty identifying it as big
24 trefoil.

25 The origin of these stands is unknown. Local inquiries have not
26 been helpful. Tobacco plantations once accompanied much of the island.
27 There was reportedly a dairy located on Mulberry Island where Fort

1 Eustis was established. Big trefoil seed could have come in as a
2 contaminant of other seed or in hay imported from areas where it is
3 grown. Scotchbroom found nearby was reported to have been brought over
4 in hay fed to Cornwallis' horses at Yorktown. A similar explanation
5 could be made for big trefoil. Another plausible origin would be in
6 ship's ballast which was dumped by transatlantic ships in nearby
7 Hampton Roads. Many ships are moored not far away in the James River
8 Reserve Fleet. Regardless of the origin, the species has found an
9 ecological niche where it not only persists but appears to be spreading.

10 The persistence of this species in this location prompted us to
11 collect seed in 1958 and make preliminary evaluations of spaced plants
12 over several years at one or more locations. At the Holland Station in
13 the Coastal Plains, these plants were lacking in vigor when compared to
14 standard varieties or elite germplasm. At Petersburg, some desirable
15 clones were selected from this source initially but later discarded.
16 Plants were variable for growth type with most being decumbent although
17 some were semi-erect. Apparently, the factor or factors which favor
18 persistence of this ecotype are not necessarily those which make for
19 high yields and agronomic usefulness.

20
21
22
23
24
25
26
27