

A Survey of the Amphibians and Reptiles of
Wilmington Shrub Prairie Nature Preserve, Will County, Illinois

Prepared by

Michael Redmer
456 Kilkenny Ct.
Carol Stream, Illinois 60188

Submitted to

The Wildlife Checkoff Program
Illinois Department of Natural Resources
524 S. Second Street
Springfield, Illinois 62701

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Introduction

Wilmington Shrub Prairie Nature Preserve (WSP) is one of a complex of four nature preserves in southwest Will County, each of which is in the Kankakee Sands Natural Section of Illinois' Grand Prairie Natural Division (Schwegman, 1973). The sandy soils and wetlands support a variety of plant communities unique to this part of Illinois. The soils and the varied sand prairie, savanna, and wetlands of the preserves support interesting amphibian and reptile communities, often including sand-prairie species in addition to the more common species of the region (Smith, 1961). There has been no previous survey of amphibians and reptiles at WSP, though Illinois Department of Natural Resources (IDNR) staff have recorded four species there (W. Glass, personal communication). Surveys by IDNR and Forest Preserve District of Will County staff (W. Glass, personal communication; D. Mauger, unpublished data; M. Redmer, personal observation) at the other three preserves have found fairly large (in relation to total acreage) herpetofaunas (Table 1). The current herpetofaunas/acreages of these preserves are as follows: Braidwood Dunes and Savanna (BWD; 22 species : 259 acres), Hitts Siding Prairie (HSP; 20 species: 260 Acres), and Sand Ridge Savanna (SRS; 18 species: 151 acres). These four preserves are considered to be part of the "Prairie Parklands Macrosite" complex, an area which also includes the Midewin National Tallgrass Prairie/Joliet Army Training Area complex (MNTP). While the MNTP complex is over 26,000 acres in size, its herpetofauna (currently 25 species) is not much larger than those of the three preserves listed above (Table 1; Redmer and Anton 1993; Redmer 1994; Redmer, unpublished data).

Wilmington Shrub Prairie is one of the last examples of shrub prairie community remaining in Illinois (White, 1978; McFall and Karnes, 1995). This community is characterized by a matrix of shrubs such as red ozier (*Cornus stolonifera*), meadowsweet (*Spira alba*), and hardhack (*S. tomentosa*), interspersed with mesic prairie forbs and grasses, such as big bluestem (*Andropogon gerardii*) and broom sedge (*A. virginica*). Other major habitat types include successional black oak (*Quercus velutina*) savanna as well as swamps of cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*) and willows (*Salix* spp.). The diversity of WSP's communities in general, the uniqueness of the shrub prairie community in particular, as well as the proximity of WSP to the other three Nature Preserves, the location of WSP in the Prairie Parklands Macrosite and herpetofauna-rich western part Kankakee Sands Natural Section made it desirable to conduct additional surveys there for amphibians and reptiles. A secondary goal of this survey was to search for the state threatened Blanding's turtle (*Emydoidea blandingii*). A population of *E. blandingii* was confirmed approximately 2km away from WSP at Hitts Siding

Prairie in 1998 (Redmer, 1999). Because WSP includes >60 acres of marsh, Blanding's turtle could also occur there as well.

Methods

Field surveys included search and seize, aquatic dipnetting for amphibian larvae, and surveys for calling frogs. All adult animals were counted. When aquatic dipnetting was used, only the first 20 individual amphibian larvae captured (per field date) were counted and released. Calling frogs and toads were noted either as single individuals, or more than one individual heard calling. Most field work was conducted by M. Redmer, and T.G. Anton (Winnetka, Illinois) was subcontracted for additional field work. Thirty-five person-hours were spent surveying WSP on the following dates: 24 September, 1999 (12 h), 25 May (5 h), 26 May (7 h), 2 June (6 h) 8 June (3 h) and 9 June (2 h) 2000.

Although originally planned, trapping surveys for turtles were not conducted because of drought/low water conditions in the WSP wetlands. Visual surveys for turtles were conducted while wading shallow wetlands.

Other species: In addition to amphibians and reptiles, I noted endangered and threatened plants observed during the survey, and crayfishes caught and released while dipnetting for amphibian larvae.

Results

Seven species of amphibians and six species of reptiles were caught and released at WSP (Table 2). Few adults of any species were found during this survey, which was conducted during a prolonged regional drought. Except for wooded wetlands and ditches, most of the habitat at WSP was extremely dry during site visits. The vast majority of captures made were of amphibian larvae which were concentrated in the few wooded wetlands (Table 2). If captures of multiple concentrated amphibian larvae are counted as only single captures/date, the field effort of this study resulted in only thirty total 30 captures, or ca. 0.86 captures/field hour.

Species Accounts (Amphibians):

American Toad (*Bufo americanus*). Two adult American toads were captured during this survey. Both were found under logs in a successional black oak (*Q. velutina*) savanna near the southwest corner of the preserve (Fig. 1). This species is probably more abundant than these observations indicate though, because calling males were heard in May, and numerous tadpoles were caught in shallow margins of two wooded ponds.

Striped Chorus Frog (*Pseudacris triseriata*). Many adult chorus frogs were heard throughout this survey. Two adults were found along a grassy ditch near the southwest corner of WSP, and numerous tadpoles of this species were caught and released in wooded ephemeral ponds (Fig 2). This species was previously recorded at WSP (W. Glass, pers. comm).

Gray Treefrog (*Hyla versicolor*). Post-metamorphic gray treefrogs were not encountered during this survey. However, many gray treefrog tadpoles were caught and released in wooded wetlands near the northwest corner of WSP (Fig 3), and several times during the survey adults were heard calling (during daytime) from perches in maple and cottonwood trees.

Green Frog (*Rana clamitans*). A single green frog was caught in a wooded swamp near the northwestern corner of WSP (Fig 4). The tadpoles metamorphose in the second year after they hatch, and populations of this species require permanent or semi-permanent aquatic habitats. The drought of 1999-2000 may have limited the number of green frogs encountered, though ephemeral wetlands provide only marginal habitat, and this species may always occur in low numbers at WSP. Some green frogs likely invade WSP from the flooded strip mines to the west.

Northern Leopard Frog (*Rana pipiens*). This species was previously recorded at WSP (W. Glass, pers. comm), and five adult northern leopard frogs were observed during this survey. They were in a wet sedge meadow in the northern part of the preserve, another sedge meadow in the center of the preserve, and along a wet ditch at the southwest corner of the preserve (Fig 5). Eight tadpoles of this species were caught and released at the latter location. Drought conditions lasting until mid-May of 2000 may have prevented this species from breeding that year in some depressions that might be suitable in most years. The ditch where the tadpoles were caught was among the only places at WSP that held water before the soaking rains arrived in May and early June, well after the normal peak (early-mid April) of this species' breeding season in the region.

Eastern Tiger Salamander (*Ambystoma tigrinum*). This fossorial species is uncommonly observed, although is common in northeastern Illinois and in the Prairie Parklands Macro-site (including BWD, HSP, SRS, and MNTF). It is best detected by surveying ephemeral ponds for its larvae (present late-March through mid-July). Two larvae were caught and released during dip-net surveys of a wooded ephemeral pond near the northwest corner of WSP (Fig 6).

Species Accounts (Reptiles):

Common Snapping Turtle (*Chelydra serpentina*). One sub-adult (8" carapace) common snapping turtle was caught and released in a wooded wetland on the north end of the preserve (Fig. 7). In northeastern Illinois, this adaptable species is usually common to abundant in a wide range of aquatic habitats, including shallow ones like the ditches and shallow ponds at WSP.

Slender Glass Lizard (*Ophisaurus attenuatus*). While this legless lizard is generally rare throughout most of northeast Illinois, it is locally common in the sandy soils and preserves of the Kankakee Sands Natural Section. This species was previously recorded at WSP (W. Glass, pers. comm), and at least two individuals were observed at two locations during this survey (Fig 8).

Blue Racer (*Coluber constrictor*). One adult (estimated to be ≥ 1 m in length) was observed in the sandy/loamy cornfield just east of the WSP boundary (Fig 9). The snake was flushed from the grassy E-W IDNR easment. This species is generally uncommon in the Chicago region. It reaches its greatest abundance in the Kankakee Sands Natural Section, where it may prefer sandy soils (but is not restricted to them). Several specimens have been found in areas of morainal soils or over bedrock at the MNTTP complex (Redmer and Anton, 1993; Redmer 1994).

Fox Snake (*Elaphe vulpina*). No live individuals of this species were found at WSP, but part of a shed skin found near the southwestern corner of the preserve (Fig 10) was identified (based on weekly keeled scales and visible blotched pattern) as from this species. Fox snakes prefer open grasslands/prairies, and are among the most abundant reptiles documented elsewhere in the Prairie Parklands Macrosite, including MNTTP (Redmer and Anton, 1993; Redmer 1994).

Common garter Snake (*Thamnophis sirtalis*). Four adult common garter snakes were observed at WSP during this survey (Fig 11). This is perhaps the most widespread and common species of snake in the Chicago region. It tolerates a wide range of habitats, including ones similar to the shrubby fields, sedge meadows, and wet woodlands present at WSP.

Other Species (E/T Plant):

Narrow-Leaved Sundew (*Drosera intermedia*). Two small clumps (each estimated to have <20 plants) of this state threatened plant were found growing in mosses (primarily *Polytrichum* sp. and *Sphagnum* sp.) along a small ditch near the extreme SW corner of the WSP Preserve boundary (Fig 12).

Other Species (Crayfishes):

Four species of crayfishes were found at WSP. The devil crayfish (*Cambarus diogenes*) and prairie crayfish (*Procambarus gracillis*) are obligate burrowing species often common in wet prairies or ephemeral wetlands. They dig deep burrows to escape desiccation during times of drought. The remains of an adult *C. diogenes* were found along a ditch near the eastern side of the WSP preserve boundary. Numerous *P. gracillis* (adults and instars) were caught in the shallow wetlands at WSP. The white river crayfish (*P. acutus*), and the papershell crayfish (*Orconectes immunis*) are more aquatic generalists than *C. diogenes* and *P. gracillis*. In ephemeral wetlands, *P. acutus* and *O. immunis* may dig shallow burrows, or hide under moist

logs to avoid desiccation. Four immature *P. acutus* and three adult *O. immunis* were caught and released at WSP.

Discussion

Most of the amphibians and reptiles found at WSP during this survey are widespread and/or are common throughout the Chicago region. Several other common species common to the Chicago region (and found elsewhere in the Prairie Parklands Macrosite and/or Kankakee Sands Natural Section) may be found at WSP in the future. These include: bullfrog (*Rana catesbeiana*), painted turtle (*Chrysemys picta*), milk snake (*Lampropeltis triangulum*), and northern water snake (*Nerodia sipedon*). DeKay's snake (*Storeria dekayi*) has been found previously at WSP (W. Glass, pers. comm.), but was not found during this survey. Several other species sometimes considered to be regionally uncommon were not located at WSP.

Drought conditions persisted throughout the autumn of 1999 and until late May 2000, and few of the normally wet depressions at WSP held water during this survey. Rains in late May and early June filled ponds and pools sufficiently enough to permit some amphibians to breed, but not enough to effectively trap for turtles. Consequently, no Blanding's turtles were captured. Further surveys may be needed to determine if this species occurs at WSP.

Although characteristic sand-prairie species such as racerunners (*Cnemidophorus sexlineatus*), bullsnakes (*Pituophis melanoleucus*), and ornate box turtles (*Terrapene ornata*) are found at one or more of the other nearby nature preserves (and elsewhere in the Kankakee Sands Natural Section), none of these species was found at WSP. The blue racer (*Coluber constrictor*) and slender glass lizard (*Ophisaurus attenuatus*) were the only two species usually associated with sand which were located at WSP, and both are also characteristic of the Kankakee Sands Natural Section (Smith, 1961). The apparent absence of *C. sexlineatus*, *P. melanoleucus*, and *T. ornata* may be due to the lack of exposed sand and associated vegetation, or some other factors. These three species may prefer habitats with patches of open sand in which to burrow. The racerunner uses such areas to visually hunt for insects, and may also utilize its speed to escape predators in such open places (racerunners that run into dense grass may find their movement impeded). Populations of these three species occur near WSP. While the area surrounding WSP has few natural corridors, making it is fairly isolated (by surrounding agricultural and strip-mine land), some individuals of these species could occasionally stray onto the nature preserve. However, it is unlikely that populations these species presently occur at WSP.

The eastern hognose snake (*Heterodon platirhinos*) is another species which occurs (though rarely encountered) in the Kankakee Sands Natural Section and Prairie Parklands

Macrosite. While sandy soils may be important to this burrowing species, it (like the blue racer) locally is not restricted to areas with exposed sand. Recent specimens have been found at BWD (in/near exposed sand), HSP (in/near exposed sand), MNTP (on loamy/gravelly soil), JTA (on gravelly/morainal soils), and SRS (in/near exposed sand). The eastern hognose snake is considered a species of possible occurrence at WSP.

The western ribbon snake (*Thamnophis proximus*) has been found recently at BWD (D. Mauger, pers. comm.). This species prefers shallow, shrubby wetlands like those of WSP, and it may occur there.

This baseline survey added eight species to the herpetofauna of WSP. The drought conditions may have limited the number of species encountered in autumn 1999- spring 2000, and several more species may be found with additional field work. Additional study of amphibian and reptiles populations at WSP and surrounding preserves also would be useful. In particular, studies which compare species population density in shrub prairie versus dry, mesic, and wet sand prairie may help determine if shrub prairie has a distinct herpetofaunal community.

References

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Table 1. Amphibians and Reptiles of Braidwood Dunes and Savanna Nature Preserve (BWD), Hitts Siding Prairie Nature Preserve (HSP), Sand ridge Savanna Nature Presrve (SRS), Wilmington Shrub Prairie Nature Preserve (WSP), and the Midewin National Tallgrass Prairie-Joliet Training Area Complex (MNTP).

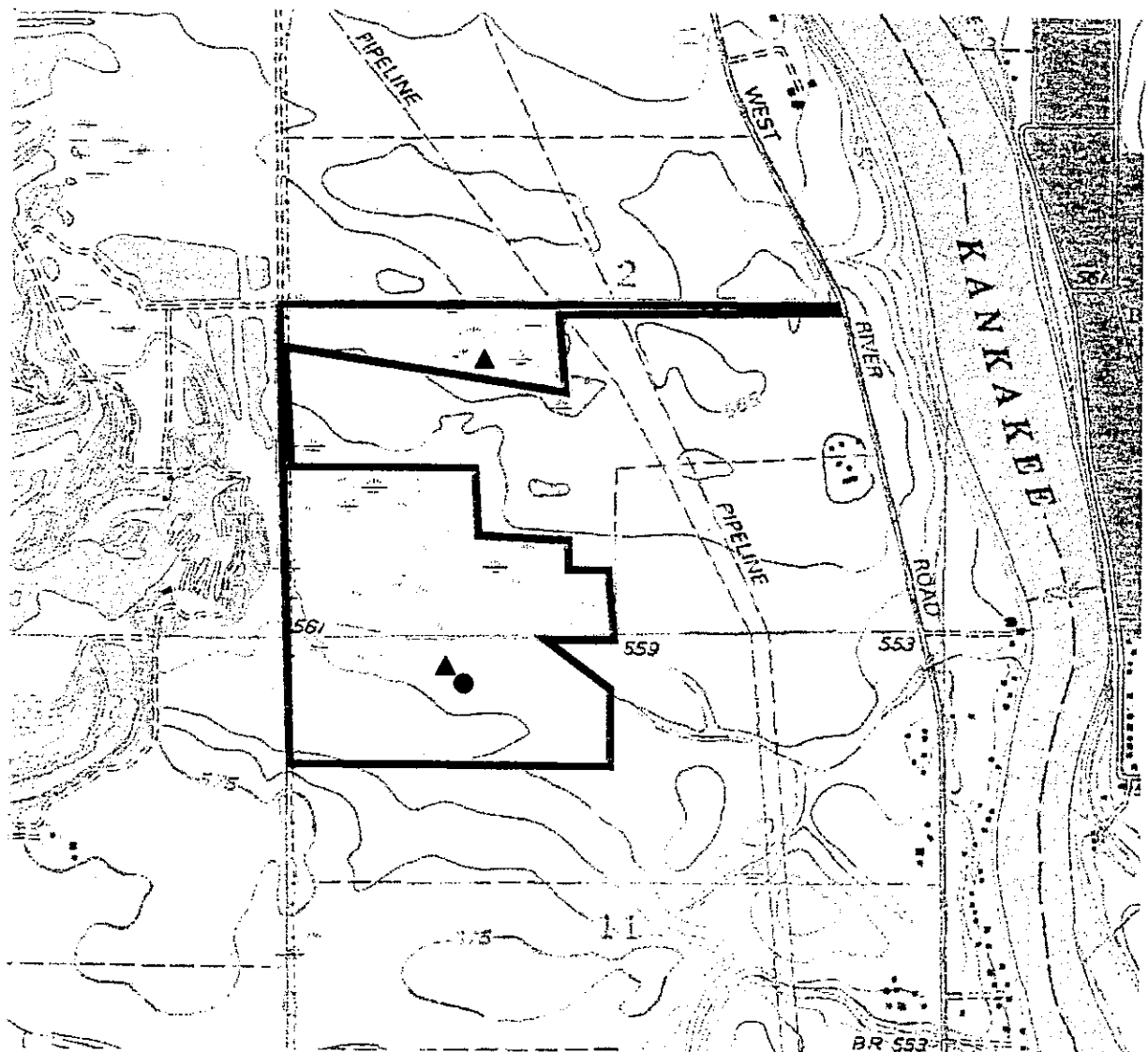
Species	Common Name	BWD	HSP	SRS	WSP	MNTP
AMPHIBIANS						
<i>Bufo americanus</i>	American Toad	X	X	X	X	X
<i>Acris crepitans</i>	Cricket Frog		X			X
<i>Hyla versicolor</i>	Gray Treefrog	X	X	X	X	X
<i>Pseudacris triseriata</i>	Striped Chorus Frog	X	X	X	X*	X
<i>Rana blairi</i>	Plains Leopard Frog					X
<i>Rana catesbeiana</i>	Bullfrog	X	X	X		X
<i>Rana clamitans</i>	Green frog	X	X	X	X	X
<i>Rana pipiens</i>	Northern Leopard Frog	X	X		X*	X
<i>Ambystoma tigrinum</i>	E. Tiger Salamander	X	X	X	X	X
<i>Notophthalmus viridescens</i>	Central Newt	X				
REPTILES						
<i>Apalone spinifera</i>	Spiny Softshell Turtle					X
<i>Chelydra serpentina</i>	Common Snapping Turtle	X	X	X	X	X
<i>Sternotherus odoratus</i>	Stinkpot					X
<i>Chrysemys picta</i>	Painted Turtle	X	X	X		X
<i>Emydoidea blandingii</i>	Blanding's Turtle	X	X			X
<i>Graptemys geographica</i>	Common Map Turtle					X
<i>Terrapene ornata</i>	Ornate Box Turtle	X	X	X		
<i>Trachemys scripta</i>	Red-Eared Slider					X
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	X	X	X	X*	
<i>Cnemidophorus sexlineatus</i>	Six-lined Racerunner	X	X	X		X
<i>Coluber constrictor</i>	Blue Racer	X	X	X	X	X
<i>Elaphe vulpina</i>	Fox Snake	X	X	X	X	X
<i>Heterodon platirhinos</i>	Eastern Hognose Snake	X	X	X		X
<i>Nerodia sipedon</i>	Northern Water Snake	X	X	X		X
<i>Opheodrys vernalis</i>	Smooth Green Snake					X
<i>Pituophis melanoleucus</i>	Bullsnake	X	X	X		
<i>Storeria dekayi</i>	DeKay's Snake				X*	X
<i>Thamnophis proximus</i>	Western Ribbon Snake	X				
<i>Thamnophis radix</i>	Plains Garter Snake	X		X		X
<i>Thamnophis sirtalis</i>	Common garter Snake	X	X	X	X	X

22 20 19 11 25

*Species previously reported from Wilmington Shrub Prairie by W. Glass.

Table 2. Captures or observations of amphibians and reptiles at Wilmington Shrub Prairie Nature Preserve during the 1999 and 2000 survey. Non foot-noted numbers indicate adults. Footnotes indicate number of amphibian larvae (footnote¹), number of frogs heard calling (footnote²), or identification based on parts of a shed skin (footnote³).

Species	Date					
	9/24/99	5/25/00	5/26/00	6/02/00	6/08/00	6/09/00
<i>Bufo americanus</i>		1/>20 ¹ />2 ²	>20 ¹ />2 ²	>20 ¹		1
<i>Hyla versicolor</i>		>2 ²	9 ¹ />2 ²	>20 ¹ />2 ²		
<i>Pseudacris triseriata</i>		1/>20 ¹ />2 ²	1/>20 ¹ />2 ²			
<i>Rana clamitans</i>						1
<i>Rana pipiens</i>		1/4 ¹	1/2 ¹	2/2 ¹		1
<i>Ambystoma tigrinum</i>			1 ²	1 ²		
<i>Chelydra serpentina</i>				1		
<i>Ophisaurus attenuatus</i>	1	1	1	2		
<i>Coluber constrictor</i>				1		
<i>Elaphe vulpina</i>						1 ³
<i>Thamnophis sirtalis</i>	1	1		2		



1000 0 1000 2000 Feet



Figure 1. Localities of American toads (*Bufo americanus*) at Wilmington Shrub Prairie in 1999 and 2000. Circle indicates location where adults were found; triangles indicate locations where tadpoles were found.

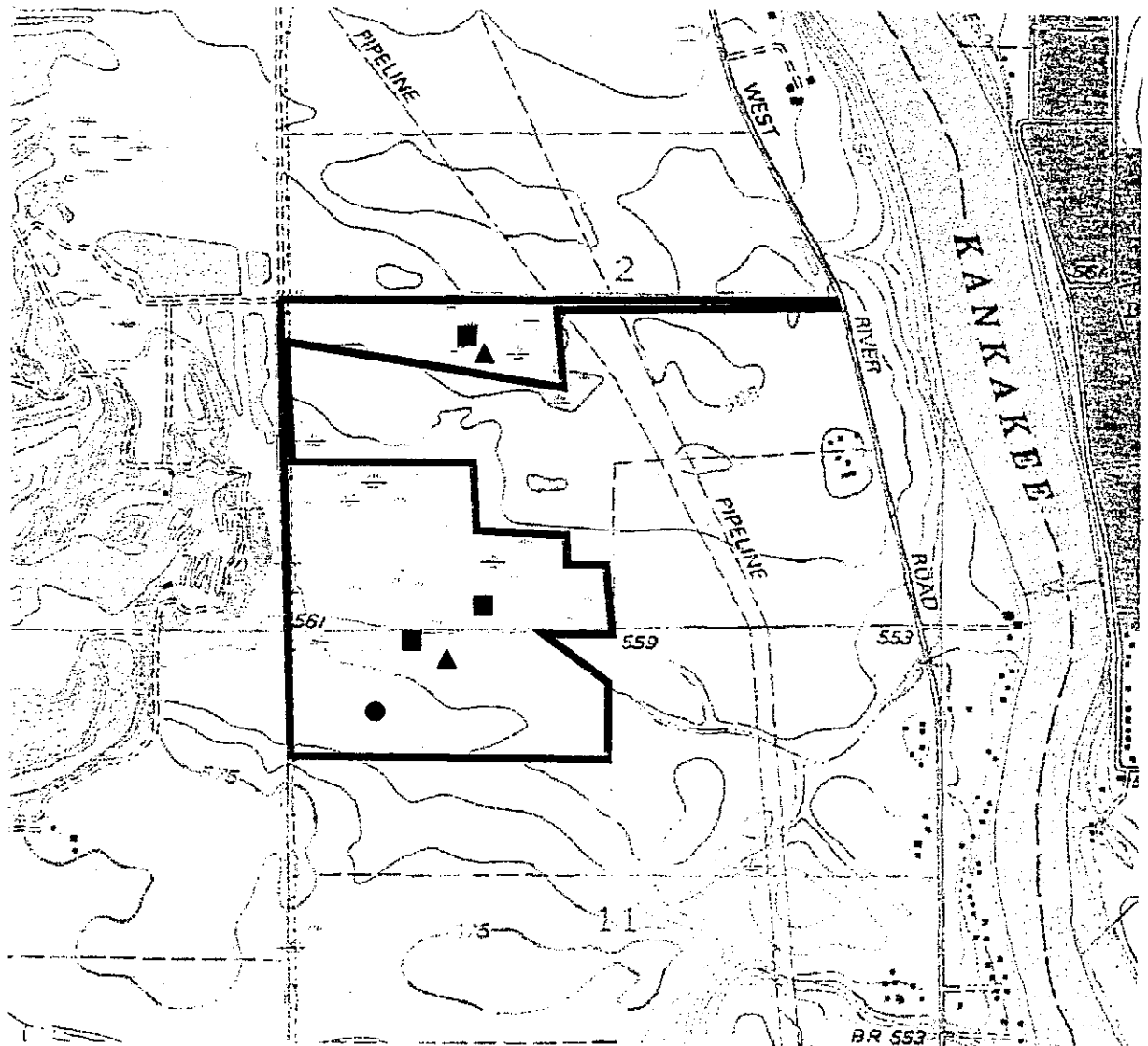


Figure 2. Localities of chorus frogs (*Pseudacris triseriata*) at Wilmington Shrub Prairie in 1999 and 2000. Circle indicates location where adults were found; triangles indicate locations where tadpoles were found, and squares indicate approximate locations where choruses were heard.

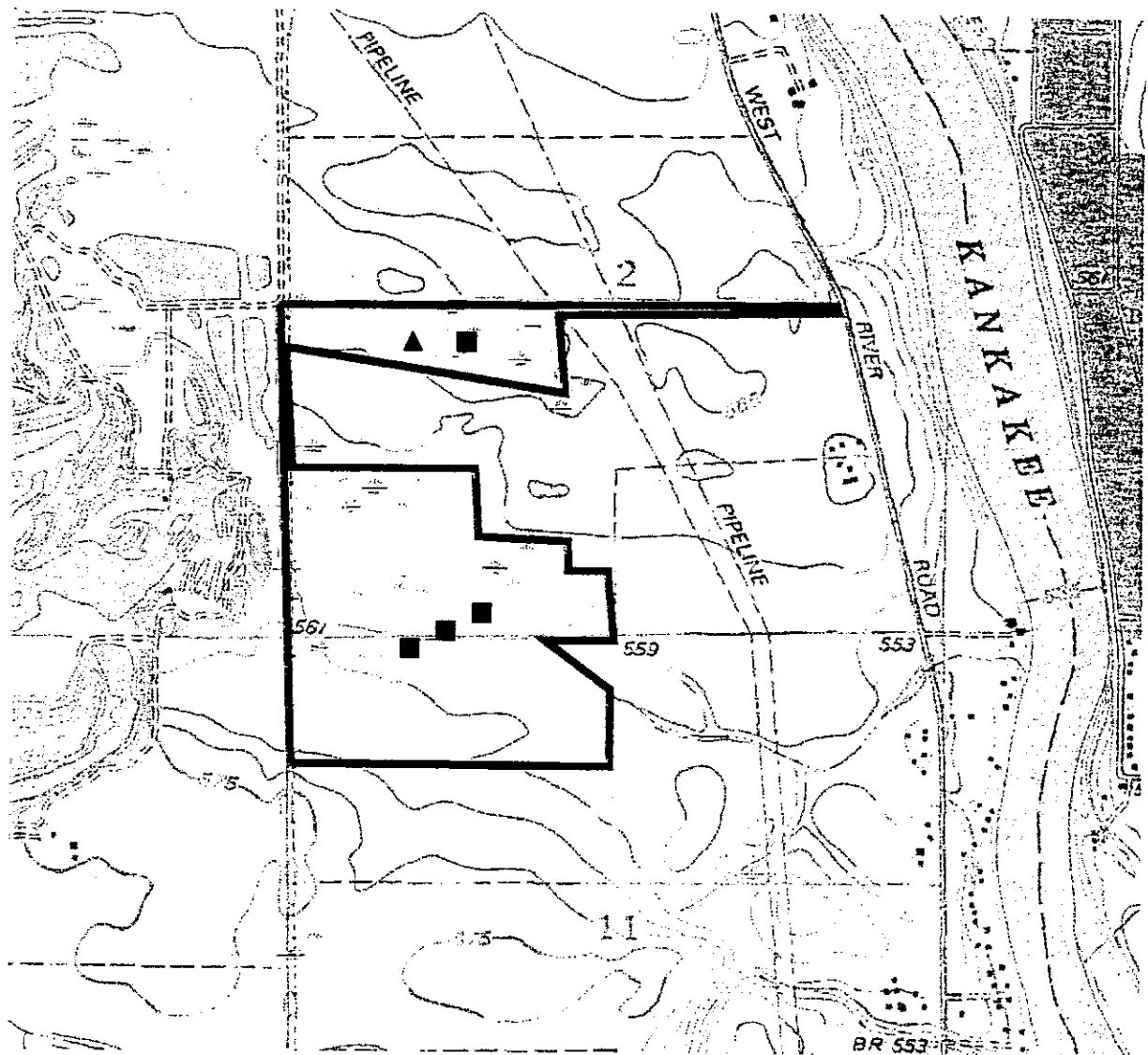
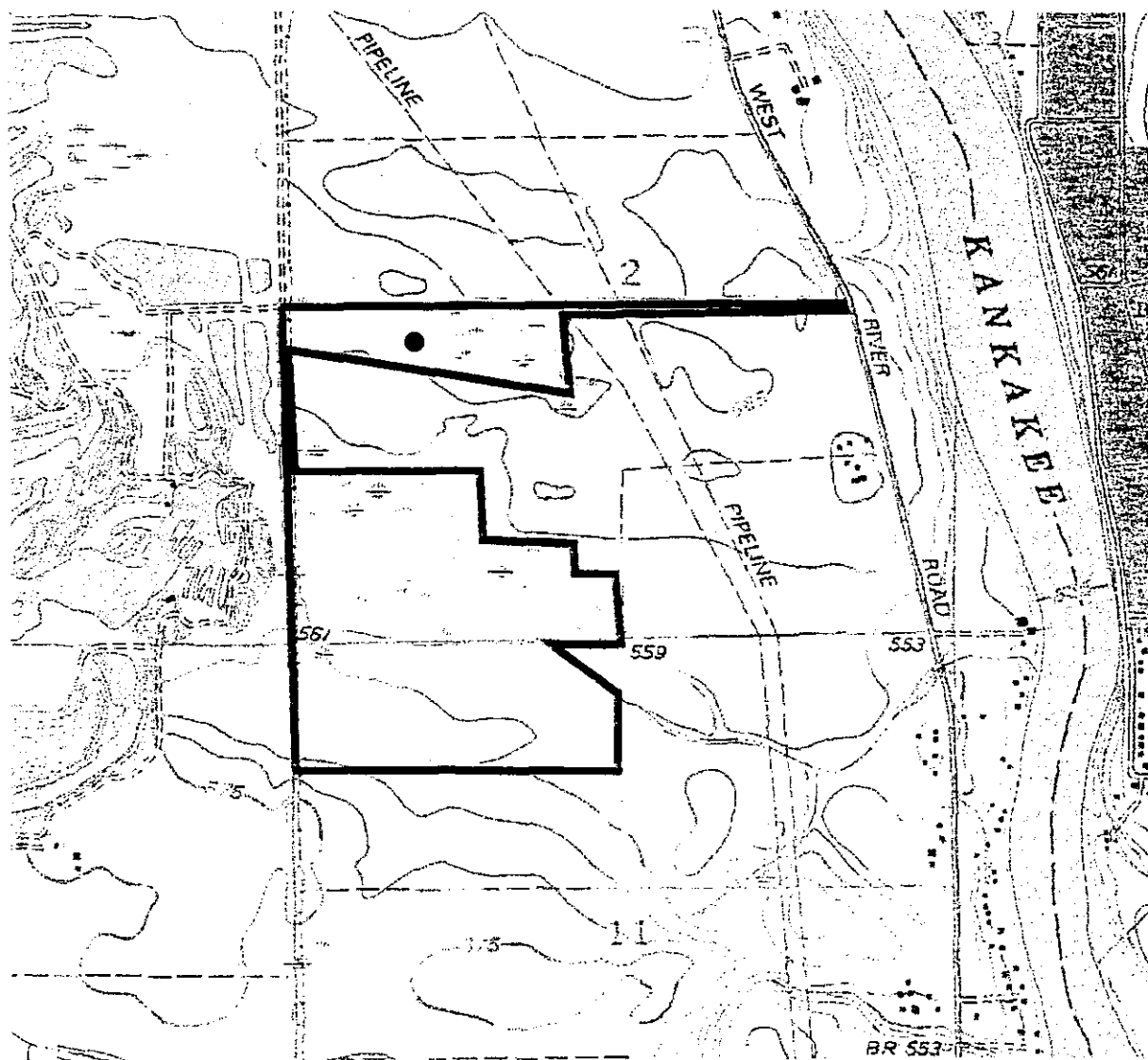


Figure 3. Localities of eastern gray treefrogs (*Hyla versicolor*) at Wilmington Shrub Prairie in 1999 and 2000. Triangle indicates location where tadpoles were found, and squares indicate approximate locations where males were heard calling from perches by day.



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Figure 4. Localities of the green frog (*Rana clamitans*) at Wilmington Shrub Prairie in 1999 and 2000. Circle indicates location where an adult was found.

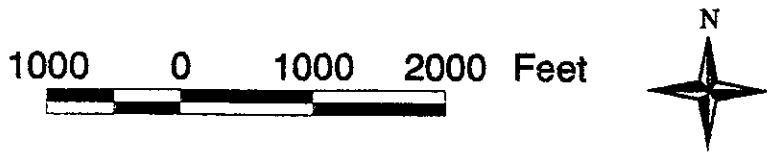
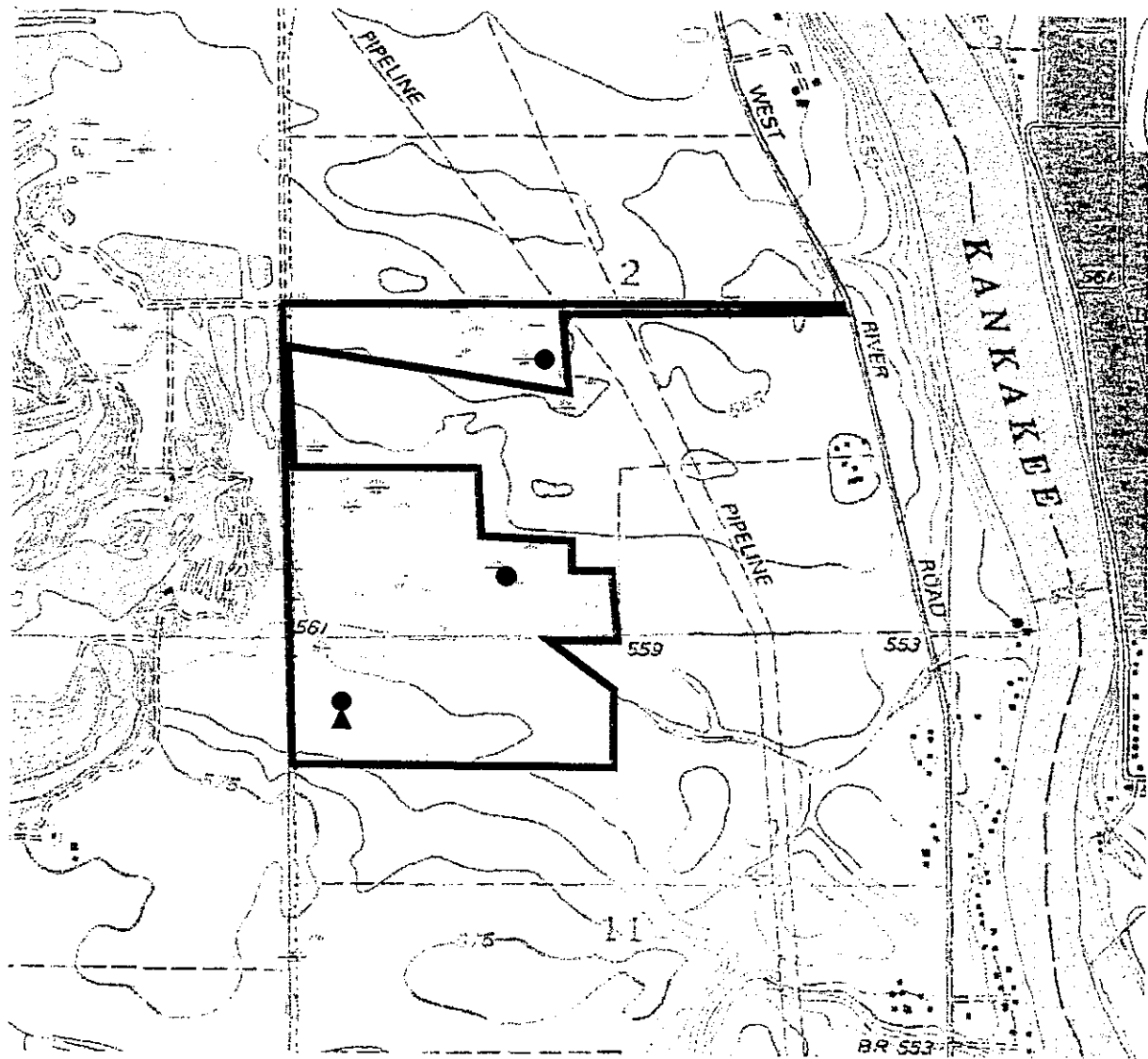


Figure 5. Localities of the northern leopard frog (*Rana pipiens*) at Wilmington Shrub Prairie in 1999 and 2000. Circles indicate locations where adults were found. Triangles indicate a location where tadpoles were found.

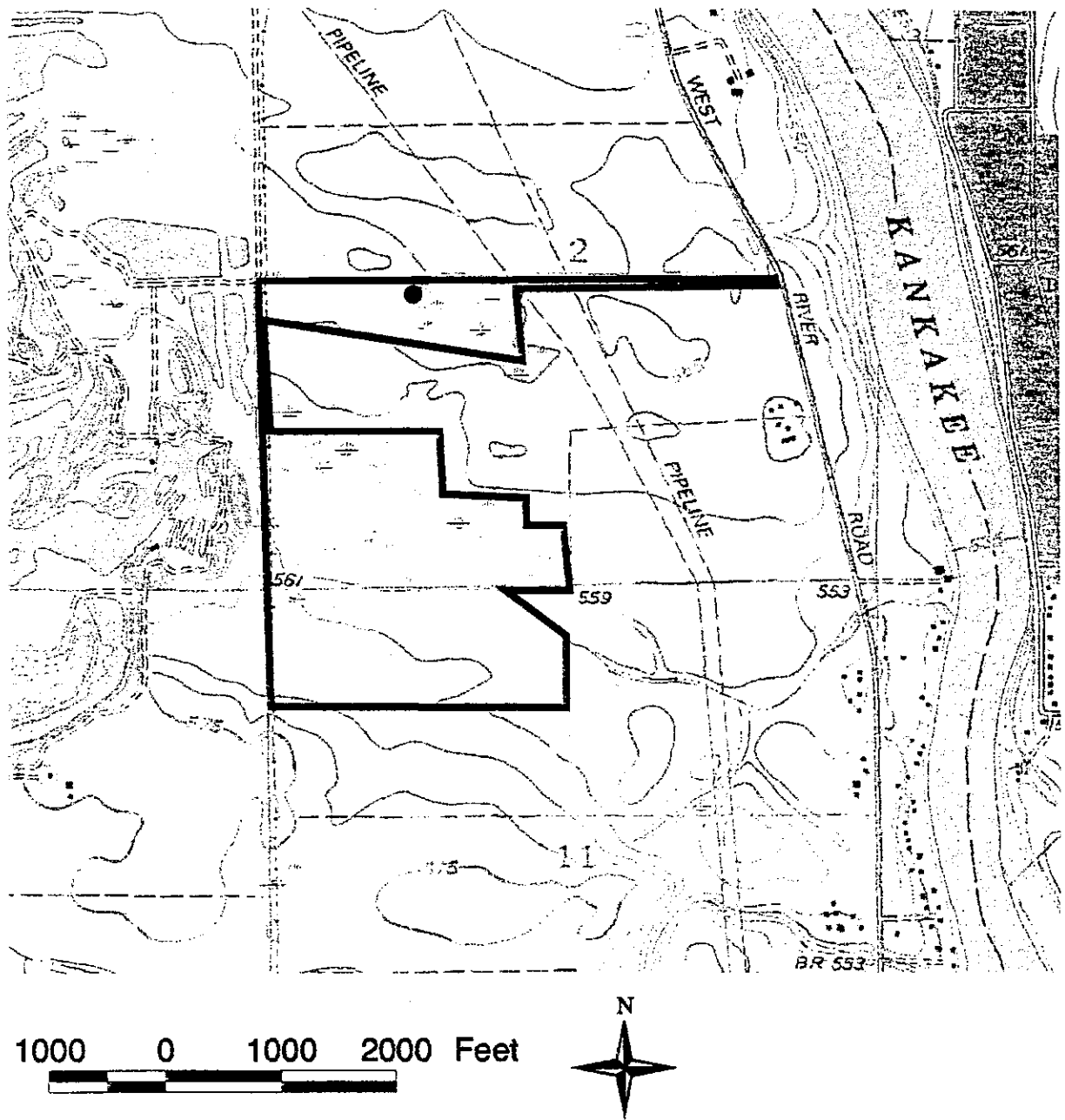


Figure 6. Localities of the tiger salamander (*Ambystoma tigrinum*) at Wilmington Shrub Prairie in 1999 and 2000. The circle indicates a location where two larvae were caught (by dipnet) and released.

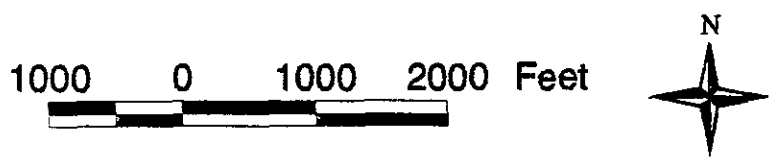
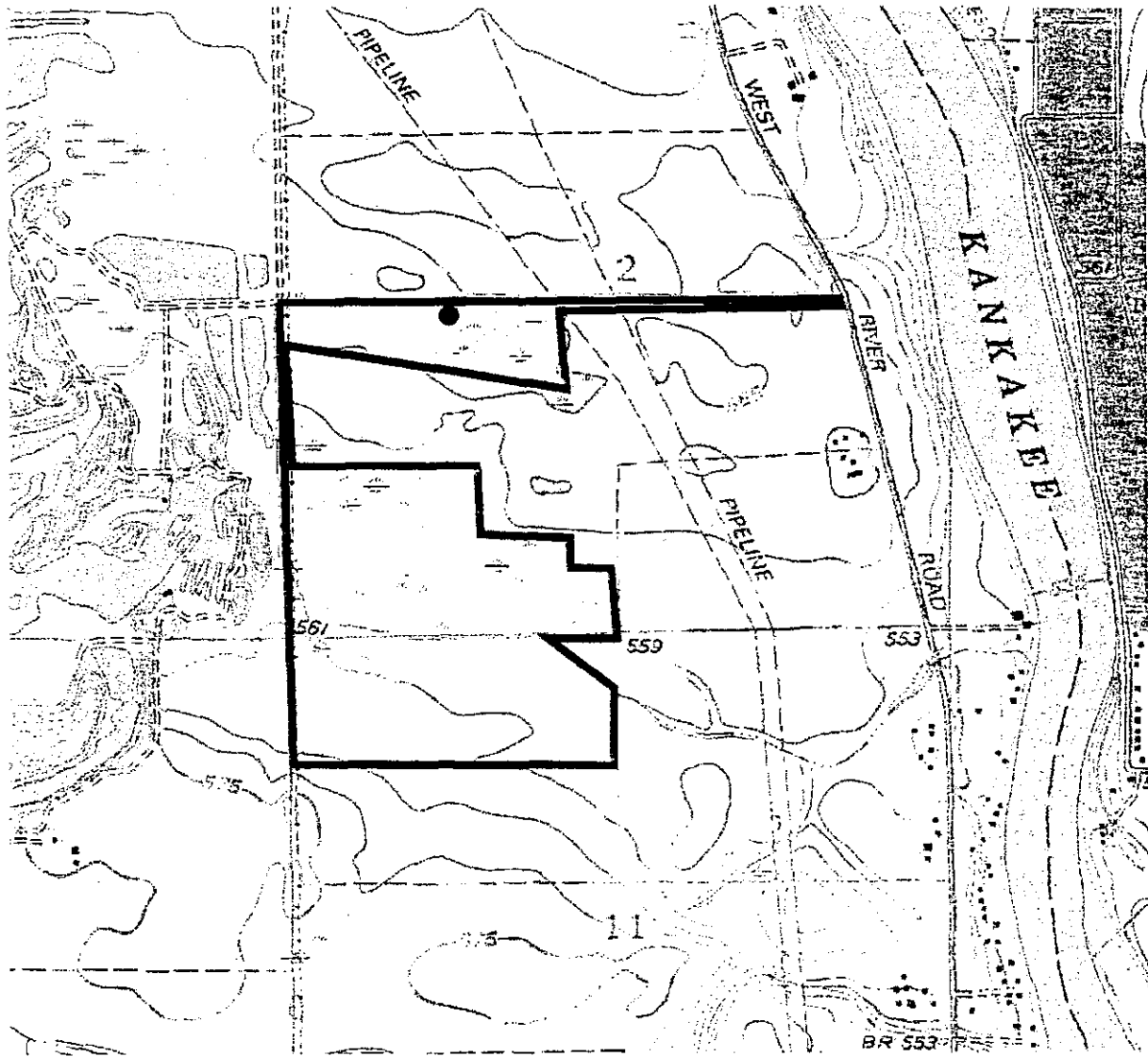


Figure 7. Localities of the common snapping turtle (*Chelydra serpentina*) at Wilmington Shrub Prairie in 1999 and 2000. The circle indicates a location where one sub-adult was caught and released.

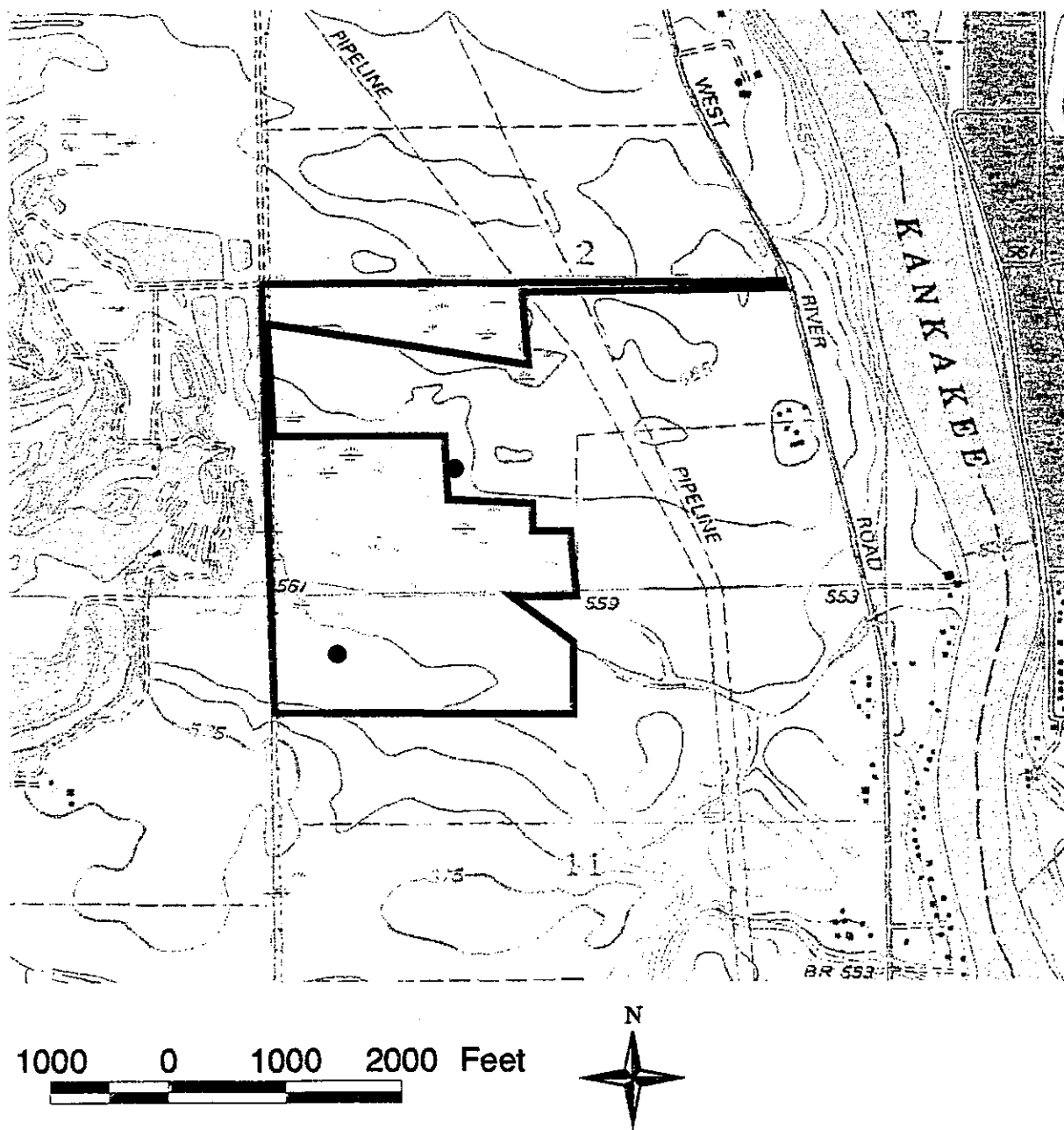


Figure 8. Localities of the slender glass lizard (*Ophisaurus attenuatus*) at Wilmington Shrub Prairie in 1999 and 2000. The upper circle indicates a location where one adult was observed; the lower circle indicates a location where four separate observations (either the same individual, or as many as four separate individuals) were made.

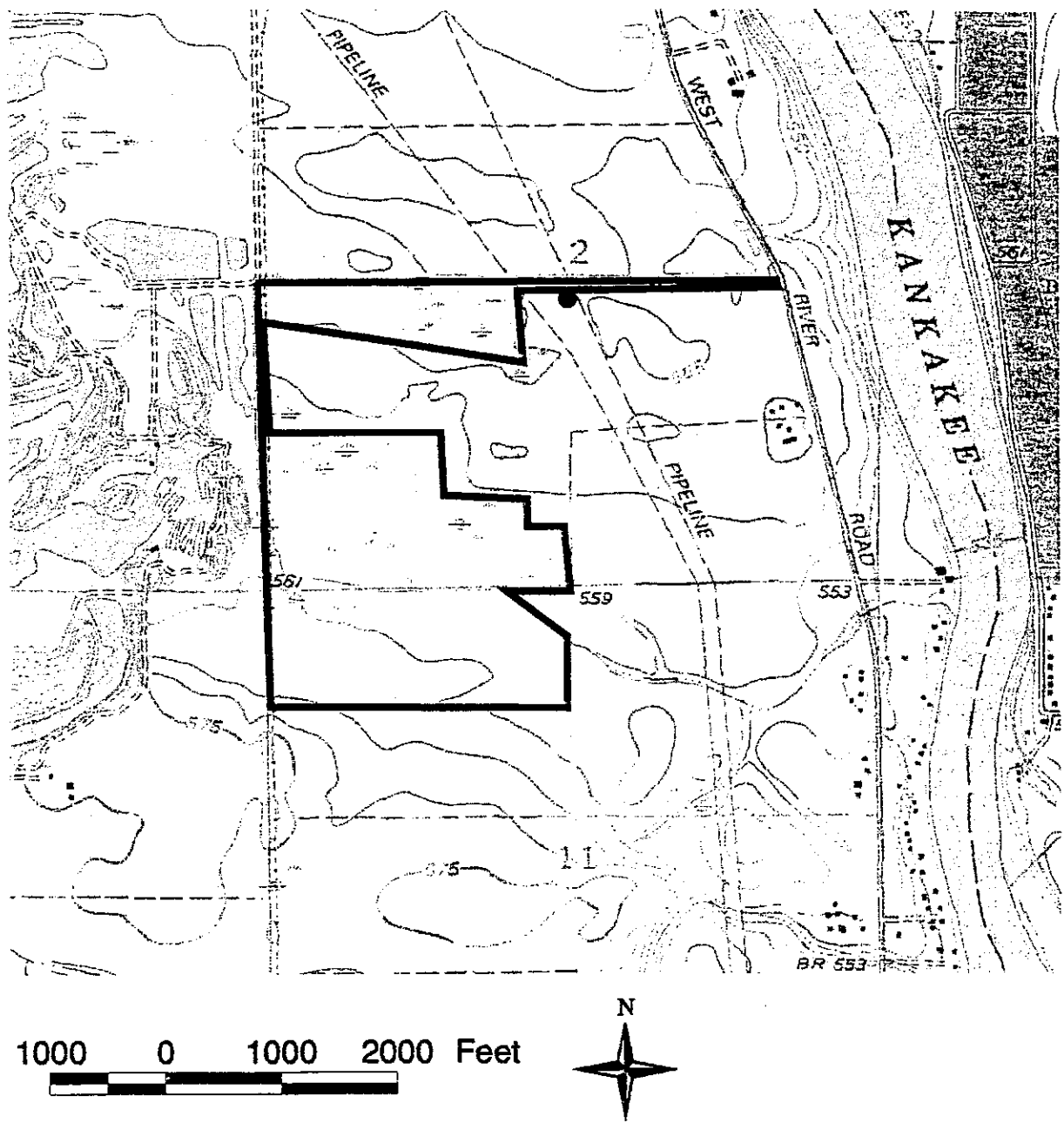


Figure 9. Localities of the blue racer (*Coluber constrictor*) at Wilmington Shrub Prairie in 1999 and 2000. The circle indicates a location where one adult was observed.

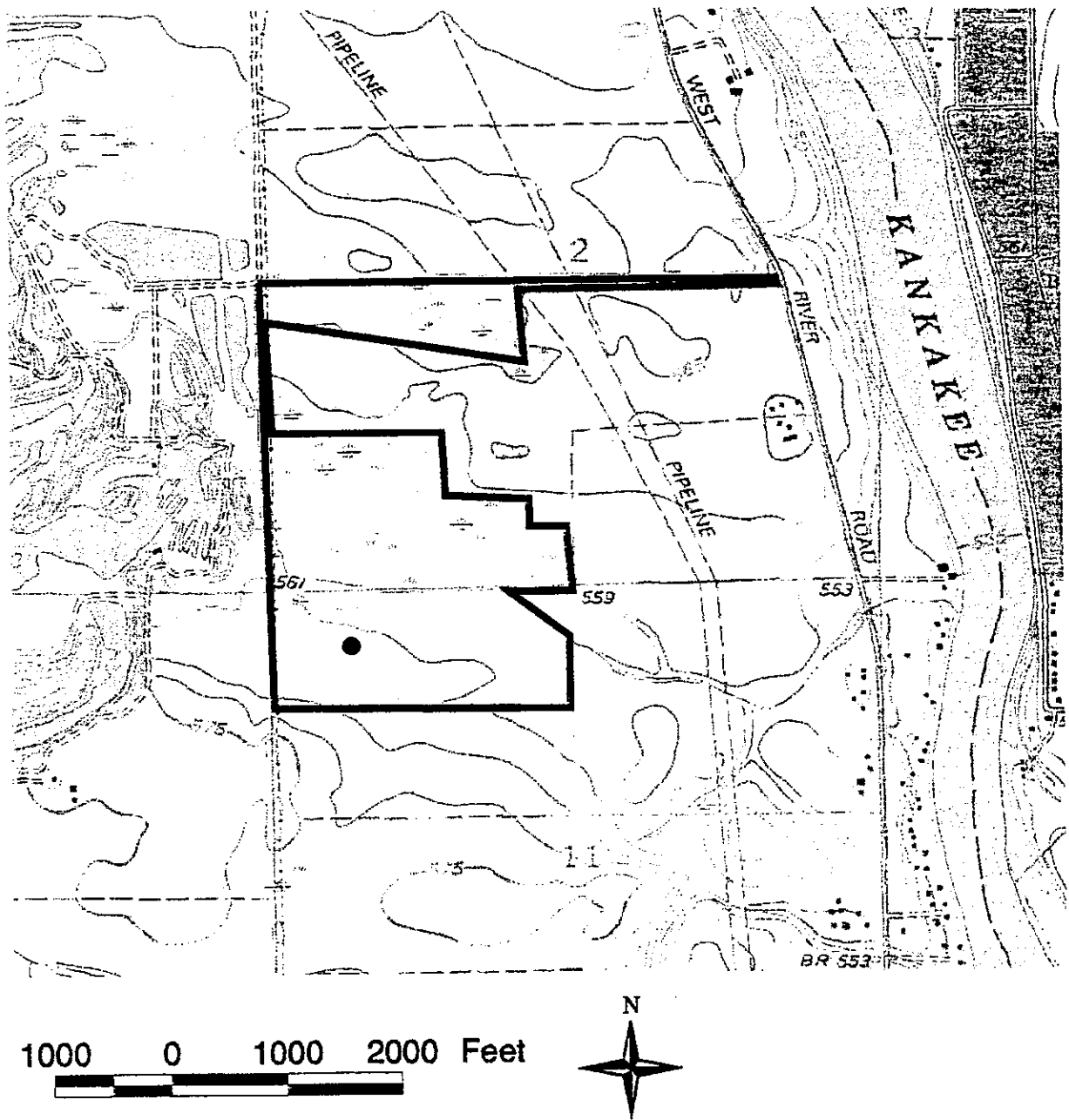


Figure 10. Localities of the fox snake (*Elaphe vulpina*) at Wilmington Shrub Prairie in 1999 and 2000. The circle indicates a location where parts of a shed skin (identified as this species) was found.

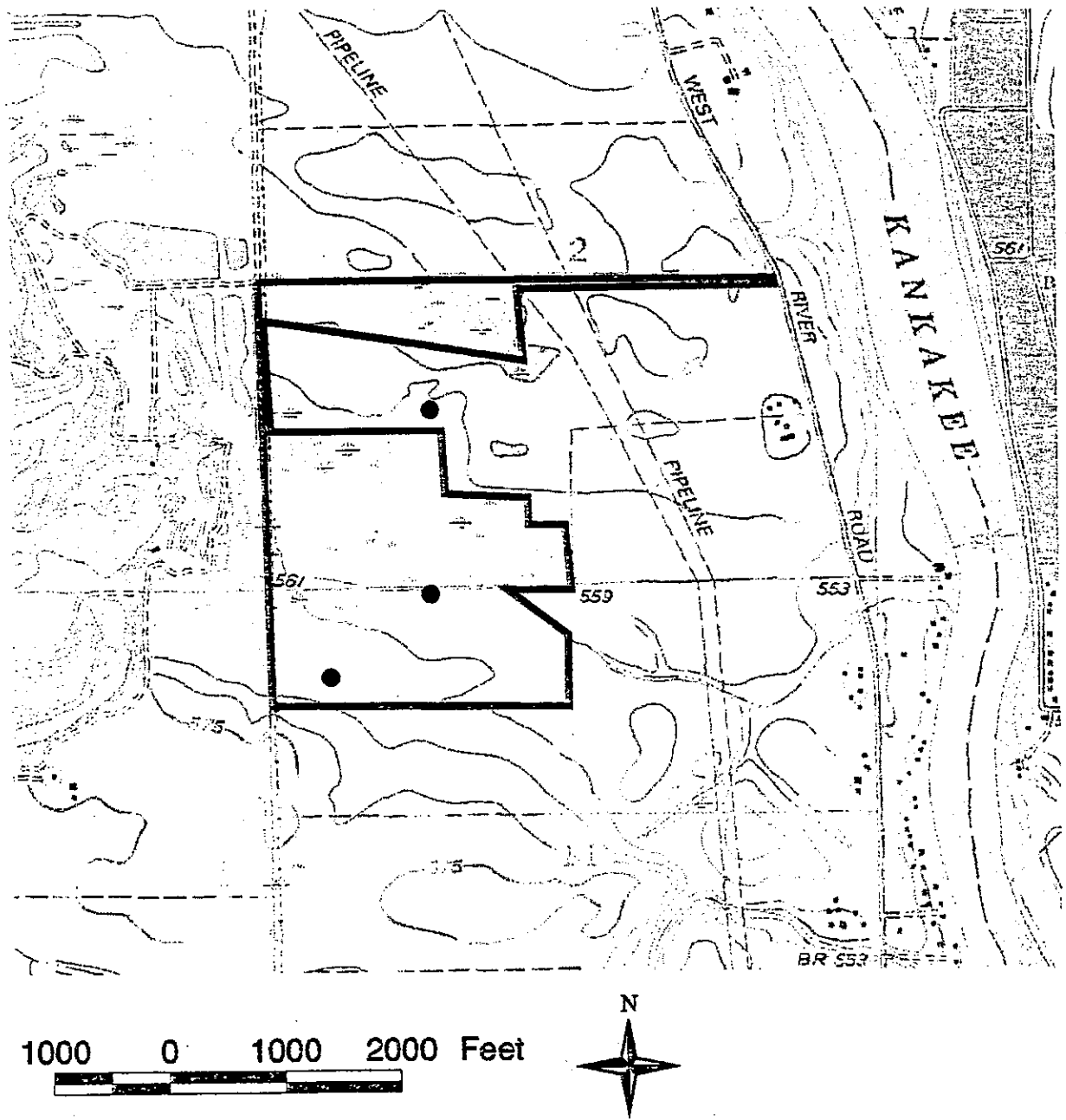


Figure 11. Localities of the common garter snake (*Thamnophis sirtalis*) at Wilmington Shrub Prairie in 1999-2000. The circles indicate locations where adults were caught and released.