

Part IV:
**Scoring Criteria for the Index of Biotic Integrity to Monitor Fish
Communities in Wadeable Streams in the Coosa and Tennessee
Drainage Basins of the Ridge and Valley Ecoregion of Georgia**

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Wildlife Resources Division
Fisheries Management Section

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Introduction

The Ridge and Valley ecoregion is one of the six Level III ecoregions found in Georgia (Part 1, Figure 1). It is drained by two major river basins, the Coosa and the Tennessee, in the northwestern corner of Georgia. The Ridge and Valley ecoregion covers nearly 3,000 square miles (United States Census Bureau 2000) and includes all or portions of 10 counties (Figure 1), bordering the Piedmont ecoregion to the south and the Blue Ridge ecoregion to the east. A small portion of the Southwestern Appalachians ecoregion is located in the upper northwestern corner of the Ridge and Valley ecoregion.

The biotic index developed by the GAWRD is based on Level III ecoregion delineations (Griffith *et al.* 2001). The metrics and scoring criteria adapted to the Ridge and Valley ecoregion were developed from biomonitoring samples collected in the two major river basins that drain the Ridge and Valley ecoregion, the Coosa (ACT) and the Tennessee (TEN). A total of 189 biomonitoring samples have been collected by the GAWRD in the Ridge and Valley ecoregion since 2001.

A total of 59 native species have been collected from samples in the Coosa drainage basin, while 58 native species have been collected from samples in the Tennessee drainage basin. A total of 29 state listed species have been collected in the Ridge and Valley ecoregion (Table 1). The state listed fish collected in the Ridge and Valley ecoregion are ranked as endangered (E), threatened (T), or rare (R) based on the Endangered Wildlife Act of 1973 (GAWRD, Wildlife Conservation Section; <http://georgiabiodiversity.org/>, 2019).

IBI scores were generally higher in the Ridge and Valley ecoregion than in the Piedmont and Southeastern Plains ecoregions. Based on the IBI integrity classes (Part I, Table 3), 23 sites scored in the excellent class, 63 scored in the good class, 48 scored in the fair class, 26 scored in the poor class, and 29 scored in the very poor class. IBI scores in the Ridge and Valley ecoregion ranged from a maximum of 58 to a minimum of 10. Unlike the Piedmont ecoregion, more sites scored in the excellent and good integrity classes ($[86/189] * 100 = 45.5$) than in the poor and very poor integrity classes ($[55/189] * 100 = 29.1$). Major impacts in the Ridge and Valley ecoregion include the effects of animal / agriculture production and urban / suburban development.

Table 2 shows the scoring criteria for the IBI metrics in the Ridge and Valley ecoregion. The Maximum Species Richness (MSR) graphs for each basin group within the Ridge and Valley ecoregion are included in (Appx. 1). Figures ACT1 - RGV through ACT6b - RGV depict the (MSR) graphs used to score the species richness metrics (metrics 1 – 6b) in the Coosa drainage basin. Figures TEN1 - RGV through TEN6b - RGV depict the (MSR) graphs used to score the species richness metrics in the Tennessee drainage basin. The fish list for the Ridge and Valley ecoregion showing the water quality tolerance rankings, feeding guilds, and species categories used in calculating the IBI is also included in (Appx. 1).

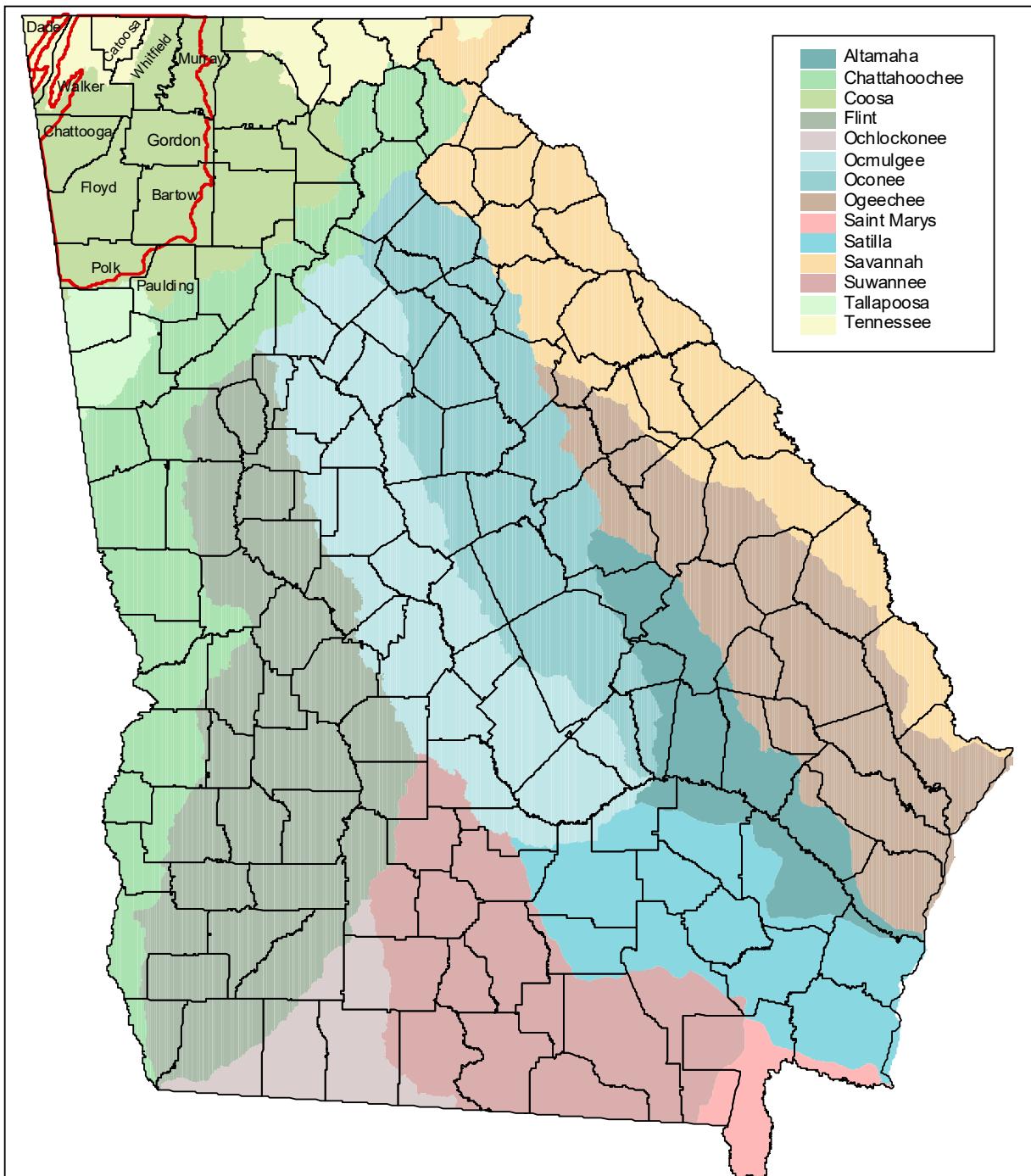


Figure 1. Level III Ridge and Valley ecoregion (outlined in bold red) in Georgia. Major drainage basins include the Coosa and the Tennessee.

Table 1. State listed fish found in the Ridge and Valley ecoregion of Georgia (GAWRD, Wildlife Conservation Section; <http://georgiabiodiversity.org/>, 2019).

Species	State Status	Federal Status	Basin
Tennessee Dace (<i>Chrosomus tennesseensis</i>)**	E	None	TEN
Blue Shiner (<i>Cyprinella caerulea</i>)	E	T	COO
Coldwater Darter (<i>Etheostoma ditrema</i>)	E	None	COO
Blackside Snubnose Darter (<i>Etheostoma duryi</i>)**	R	None	TEN
Etowah Darter (<i>Etheostoma etowhae</i>)	E	E	COO
Rock Darter (<i>Etheostoma rupestre</i>)	R	None	COO
Cherokee Darter (<i>Etheostoma scotti</i>)	T	T	COO
Trispot Darter (<i>Etheostoma trisella</i>)**	E	None	COO
Northern Studfish (<i>Fundulus catenatus</i>)**	R	None	TEN
Flame Chub (<i>Hemitremia flammea</i>)**	E	None	TEN
Lined Chub (<i>Hybopsis lineapunctata</i>)**	R	None	COO
Ohio Lamprey (<i>Ichthyomyzon bdellium</i>)**	R	None	TEN
Coosa Chub (<i>Macrhybopsis etnieri</i>)	E	None	COO
River Redhorse (<i>Moxostoma carinatum</i>)	R	None	COO, TEN
Popeye Shiner (<i>Notropis ariommus</i>)	E	None	TEN
Burrhead Shiner (<i>Notropis asperifrons</i>)**	T	None	COO
Silver Shiner (<i>Notropis photogenis</i>)	T	None	TEN
Mountain Madtom (<i>Noturus eleutherus</i>)	E	None	TEN
Frecklebelly Madtom (<i>Noturus munitus</i>)	E	None	COO
Amber Darter (<i>Percina antesella</i>)	E	E	COO
Goldline Darter (<i>Percina aurolineata</i>)	E	T	COO
Conasauga Logperch (<i>Percina jenkinsi</i>)	E	E	COO
Bridled Darter (<i>Percina kusha</i>)	E	None	COO
Freckled Darter (<i>Percina lenticula</i>)	E	None	COO
Dusky Darter (<i>Percina sciera</i>)**	R	None	TEN
River Darter (<i>Percina shumardi</i>)	E	None	COO, TEN
Snail Darter (<i>Percina tanasi</i>)	E	T	TEN
Stargazing Minnow (<i>Phenacobius uranops</i>)**	T	None	TEN
Southern Cavefish (<i>Typhlichthys subterraneus</i>)	E	None	TEN

Status: E = endangered; R = rare; T = threatened

Basin: COO = Coosa; TEN = Tennessee

** = collected by the Georgia DNR Stream Survey Team within the RGV ecoregion of the Coosa and Tennessee drainage basins

Table 2. Index of Biotic Integrity metrics for wadeable streams in the Ridge and Valley ecoregion of Georgia.

Metric	Basin Group	Scoring Criteria	
		<u>Species Richness Metrics</u>	<u>5/3 Breaks</u>
1. Number of native species	COO TEN	$y = 16.27x + 4.66$ (1.20, 24.2) $y = 13.20x + 7.75$ (1.36, 25.7)	$y = 11.66x + 3.34$ (1.20, 17.3) $y = 9.95x + 5.84$ (1.36, 19.3)
2. Number of benthic invertivore species	COO TEN	$y = 3.38x + 0.31$ (1.29, 4.7) $y = 4.46x + 0.51$ (1.23, 6.0)	$y = 1.69x + 0.15$ (1.29, 2.3) $y = 2.23x + 0.26$ (1.23, 3.0)
3a. Number of native sunfish species ^a	COO TEN	$y = 3.97x + 1.55$ (0.95, 5.3) $y = 3.03x + 1.95$ (1.06, 5.2)	$y = 2.74x + 1.07$ (0.95, 3.7) $y = 1.94x + 1.25$ (1.06, 3.3)
3b. Number of native centrarchid species ^b	COO TEN	$y = 5.12x + 1.91$ (1.09, 7.5) $y = 3.77x + 2.55$ (1.16, 6.9)	$y = 3.41x + 1.27$ (1.09, 5.0) $y = 2.63x + 1.78$ (1.16, 4.8)
4. Number of native insectivorous cyprinid species	COO TEN	$y = 2.92x + 1.08$ (1.23, 4.7) $y = 3.23x + 1.14$ (1.41, 5.7)	$y = 1.46x + 0.54$ (1.23, 2.3) $y = 1.92x + 0.68$ (1.41, 3.4)
5. Number of native round-bodied sucker species	COO TEN	$y = 3.25x - 0.49$ (1.18, 3.3) $y = 2.57x + 0.46$ (1.12, 3.3)	$y = 1.63x - 0.24$ (1.18, 1.7) $y = 1.28x + 0.23$ (1.12, 1.7)
6a. Number of sensitive species ^a	COO TEN	$y = 2.13x + 0.39$ (1.07, 2.7) $y = 5.94x - 0.56$ (0.77, 4.0)	$y = 1.06x + 0.20$ (1.07, 1.3) $y = 2.97x - 0.28$ (0.77, 2.0)
6b. Number of intolerant species ^b	COO TEN	$y = 3.29x - 1.70$ (1.33, 2.7) $y = 3.72x - 0.86$ (1.31, 4.0)	$y = 1.65x - 0.85$ (1.33, 1.3) $y = 1.86x - 0.43$ (1.31, 2.0)

<u>Species Composition Metrics</u>		<u>5</u>	<u>3</u>	<u>1</u>
7. Evenness	COO	≥ 78.1	$78.1 - \geq 68.9$	< 68.9
	TEN	≥ 72.6	$72.6 - \geq 63.8$	< 63.8
8. % of individuals as <i>Lepomis</i> species	COO	≤ 28.7	$28.7 - \leq 53.4$	> 53.4
	TEN	≤ 28.8	$28.8 - \leq 54.6$	> 54.6
9. % of individuals as insectivorous cyprinids	COO	≥ 26.0	$26.0 - \geq 13.0$	< 13.0
	TEN	≥ 32.2	$32.2 - \geq 16.4$	< 16.4
10a. % of individuals as generalist feeders and herbivores	COO	≤ 33.4	$33.4 - \leq 56.0$	> 56.0
	TEN	≤ 35.9	$35.9 - \leq 57.8$	> 57.8
10b. % of individuals as top carnivores ^b	COO	$\geq 3.6 - \leq 9.2$	$\geq 1.8 - 3.6$	< 1.8
			$9.2 - \leq 11.0$	> 11.0
	TEN	$\geq 3.8 - \leq 9.5$	$\geq 1.9 - 3.8$	< 1.9
			$9.5 - \leq 11.4$	> 11.4
11. % of individuals as benthic fluvial specialist	COO	≥ 27.3	$27.3 - \geq 13.6$	< 13.6
	TEN	≥ 31.8	$31.8 - \geq 16.3$	< 16.3
12. Number of individuals per 200 meters	COO	≥ 1192.6	$1192.6 - \geq 616.1$	< 616.1
	TEN	≥ 1227.6	$1227.6 - \geq 646.0$	< 646.0
13. % of individuals with external anomalies	COO / TEN	> 1.5 – subtract 4 points from total score		

^a used at sites with an upstream drainage basin area < 15 square miles

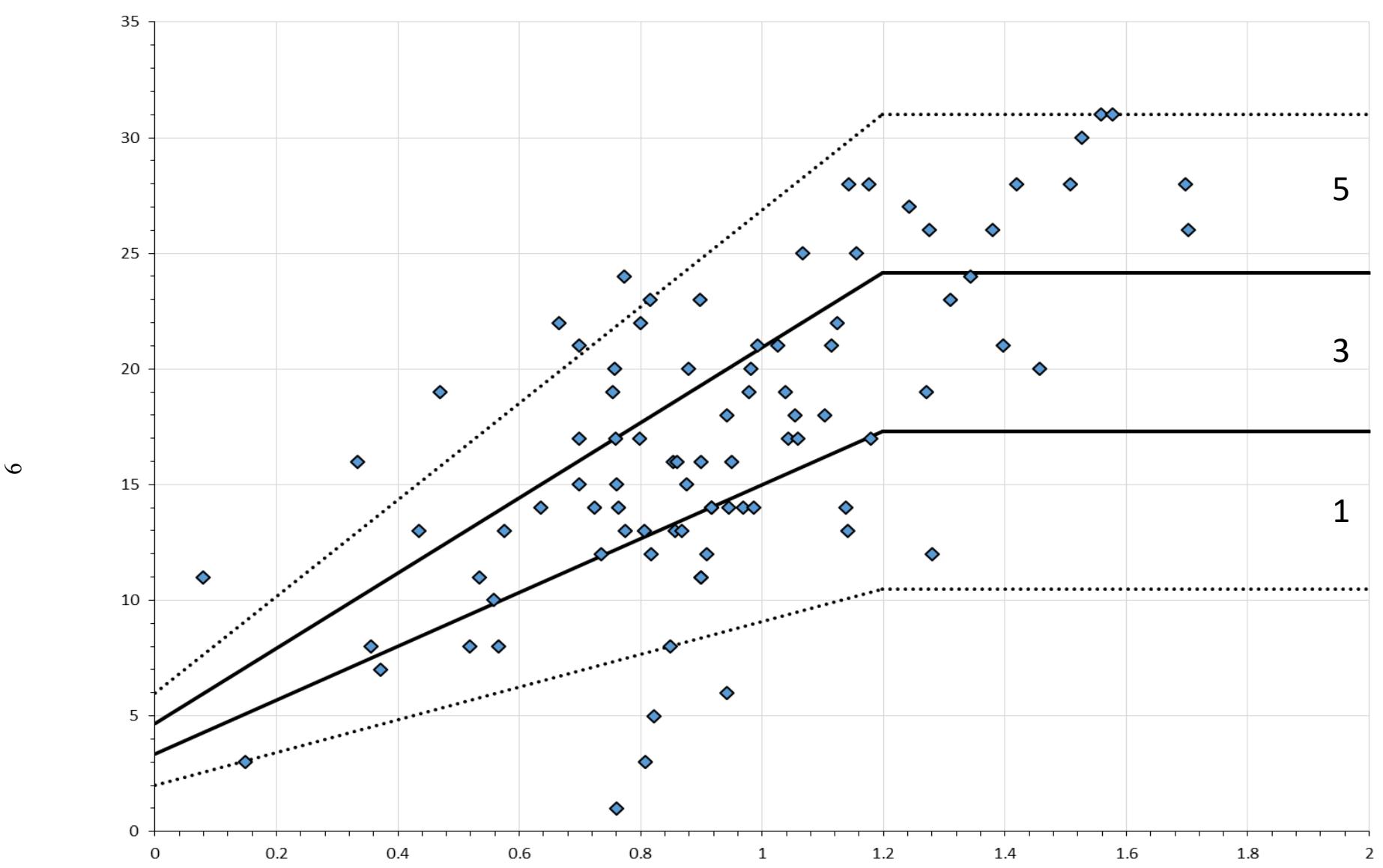
^b used at sites with an upstream drainage basin area ≥ 15 square miles

References

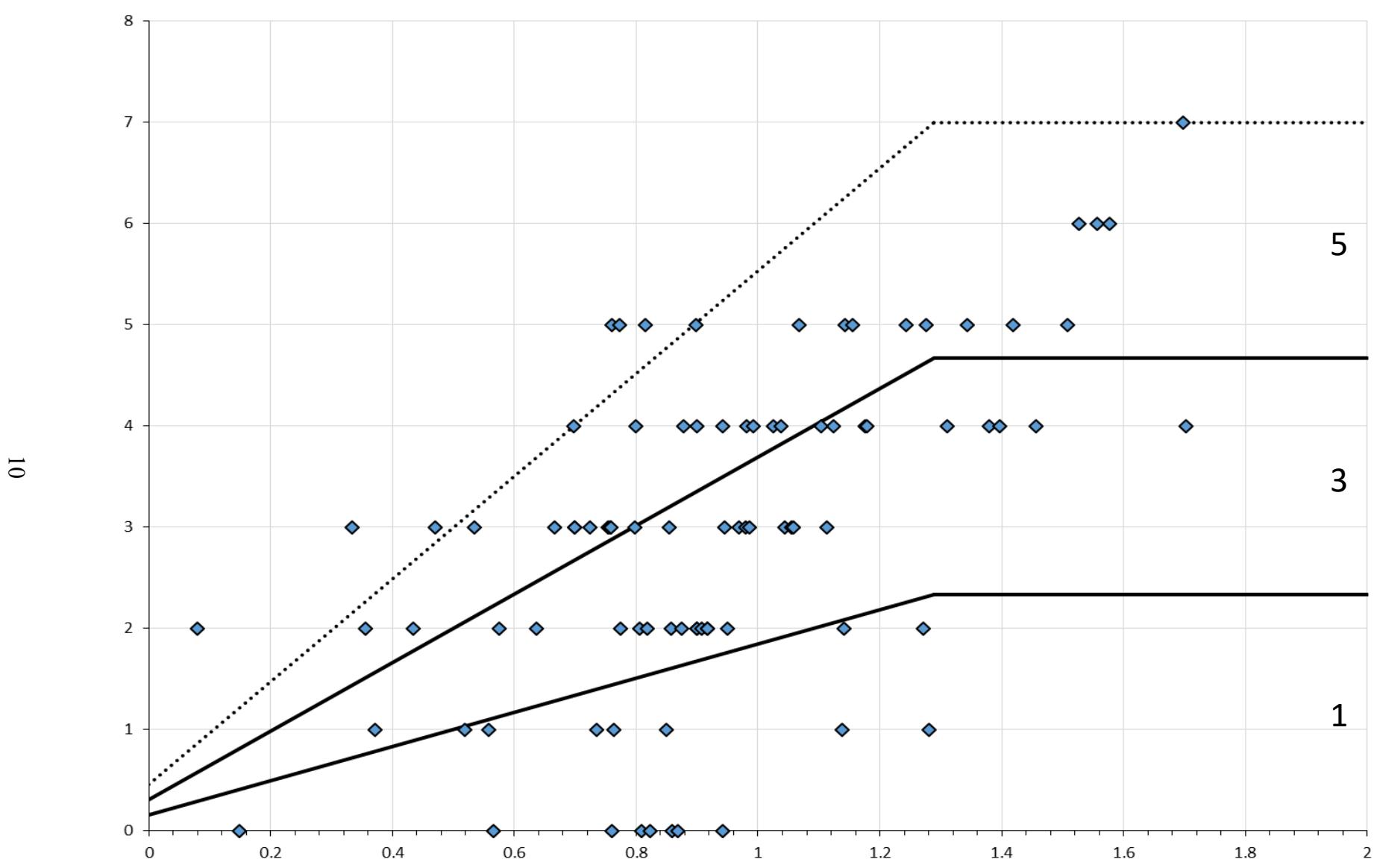
- Georgia Department of Natural Resources, Wildlife Resources Division. 1999. Protected Animals of Georgia. Nongame Wildlife – Natural Heritage Section, Forsyth, Georgia.
- Griffith, G.E., J.M. Omernik, J.A. Comstock, S. Lawrence, and T. Foster. 2001. Level III and IV Ecoregions of Georgia, (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia, U.S. Geological Survey.
- United States Census Bureau. 2000. 2000 Census of Population and Housing. United States Census Bureau, Washington, D.C.

Appendix 1

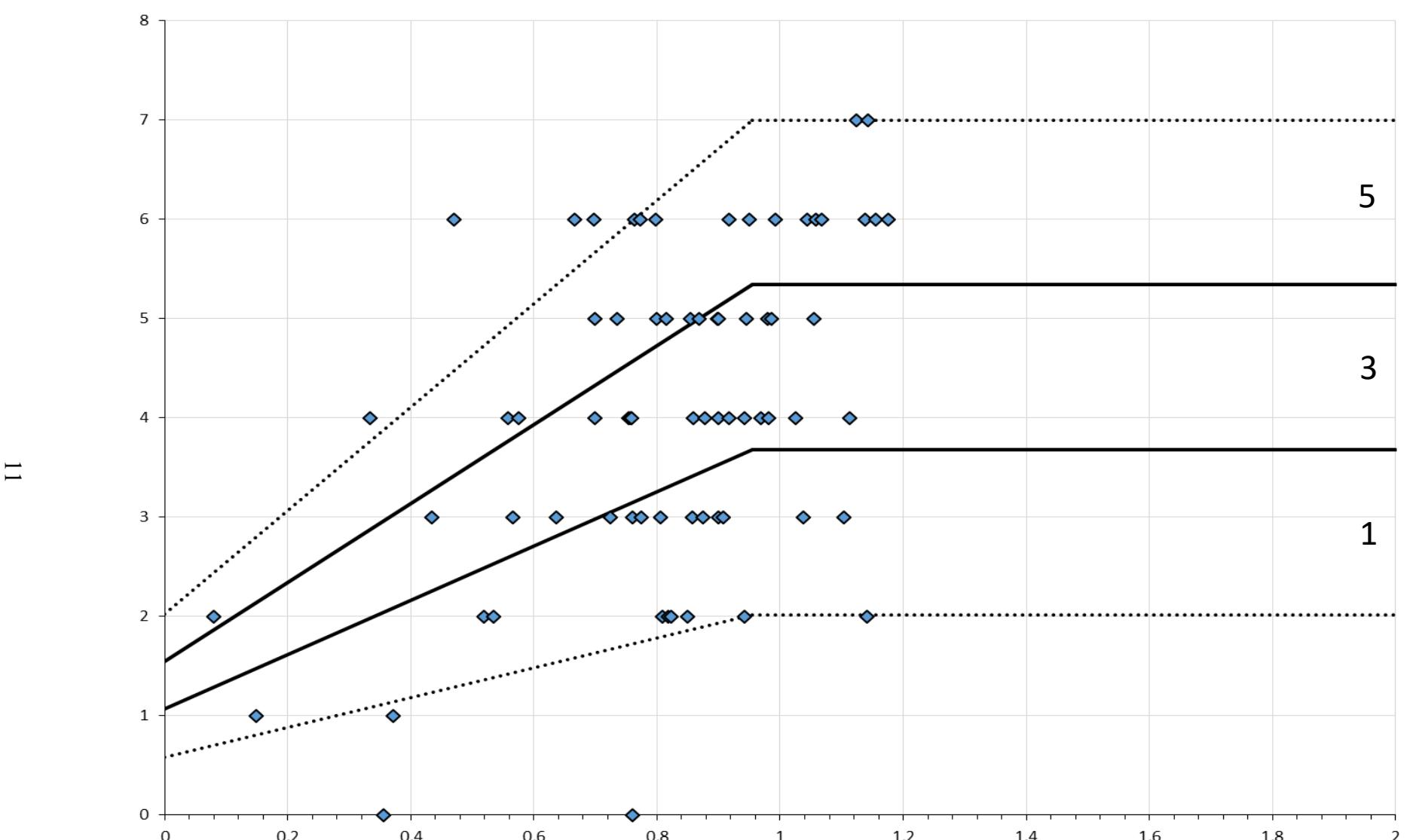
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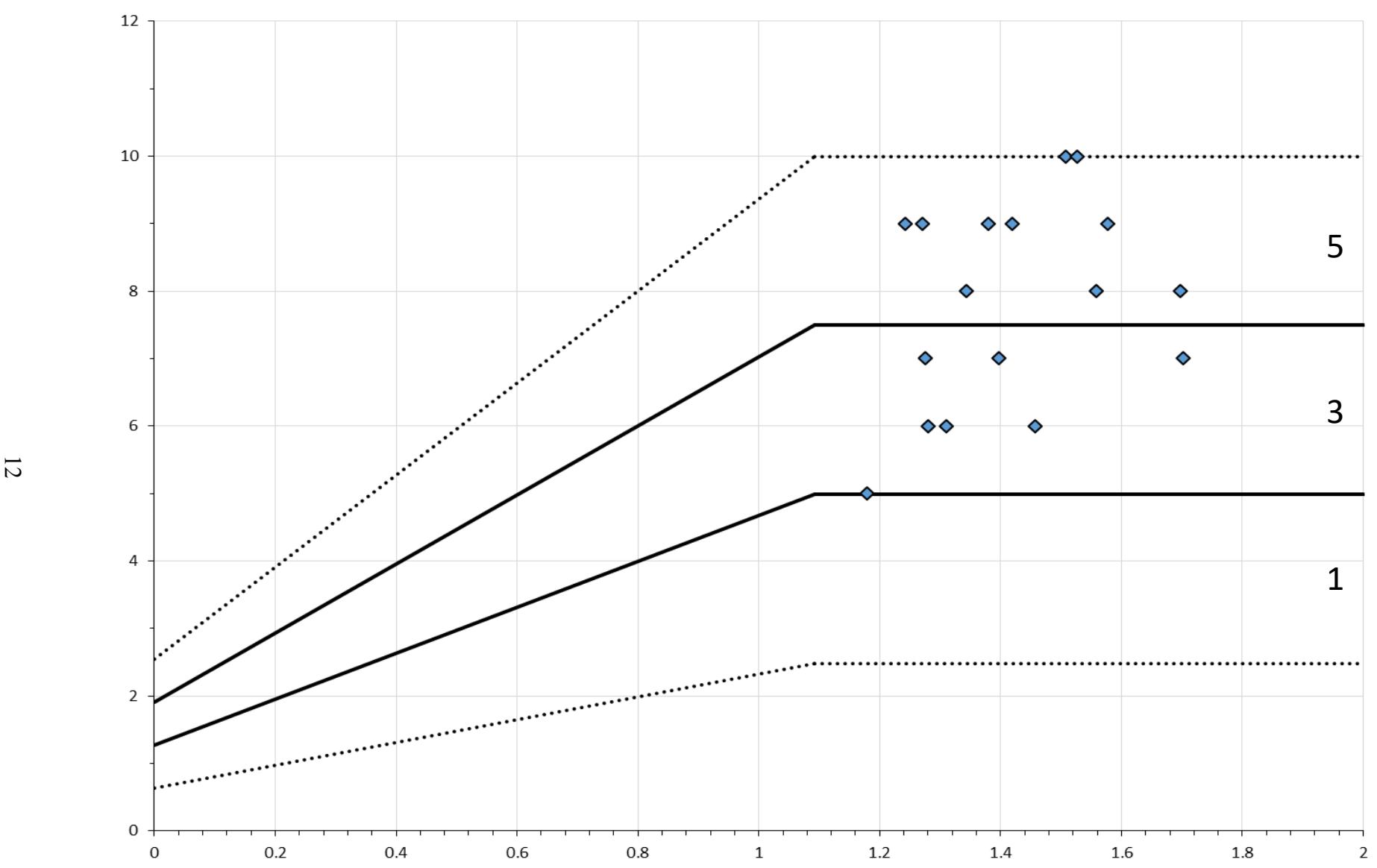
ACT1 - RGV. Total number of species in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



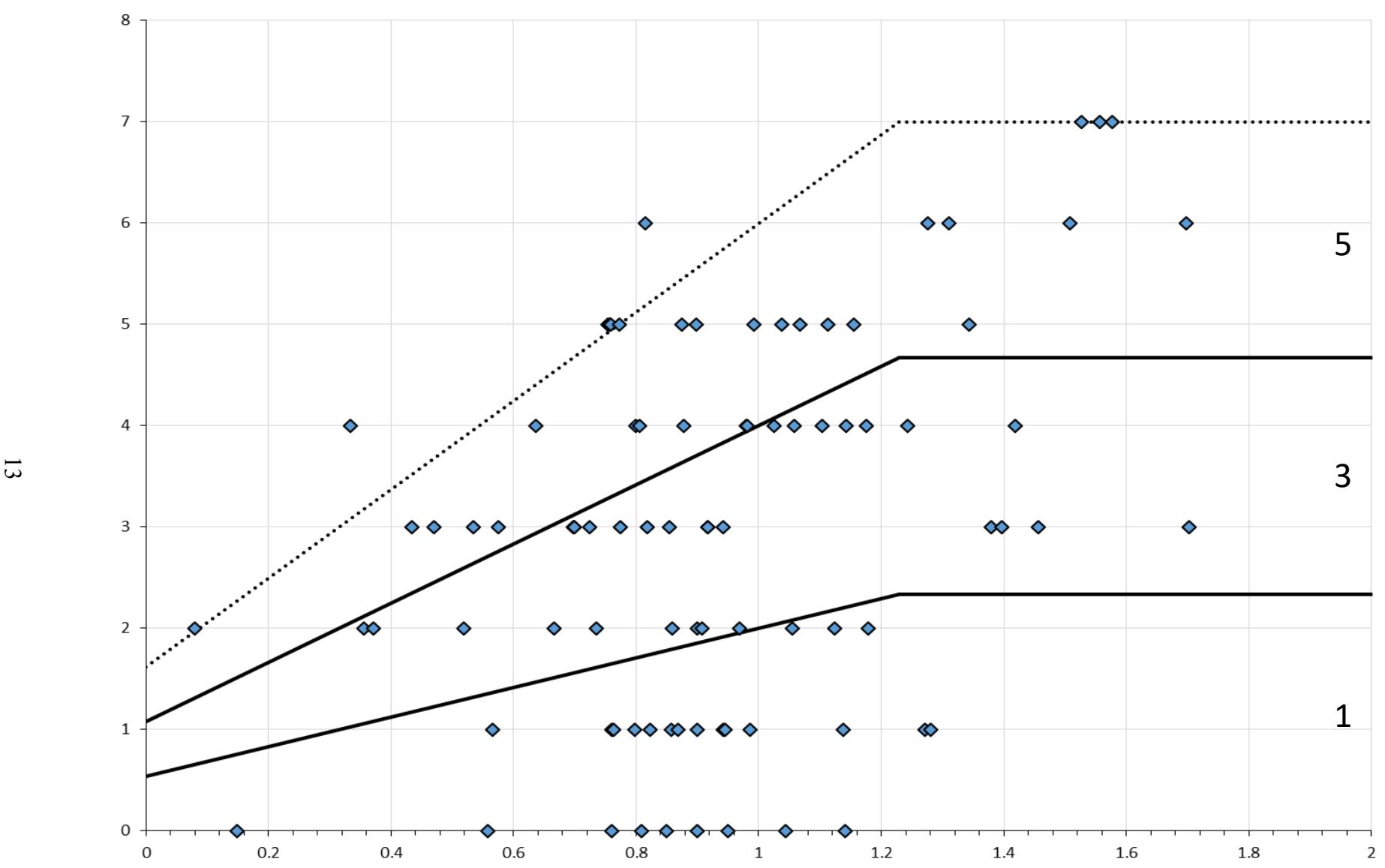
ACT2 - RGV. Number of benthic invertivore species in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



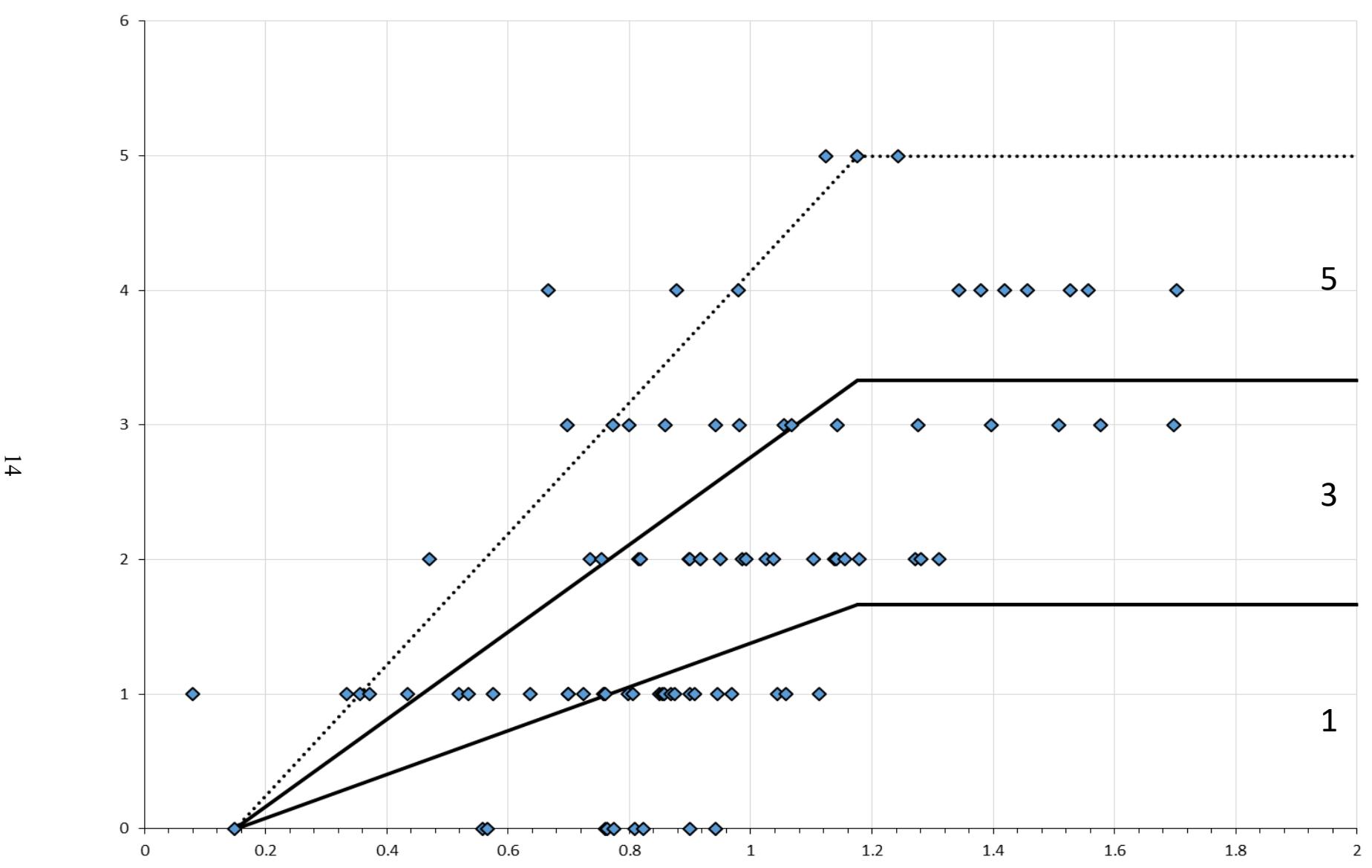
ACT3a - RGV. Number of native sunfish species in headwater streams (<15 square miles drainage basin area) in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



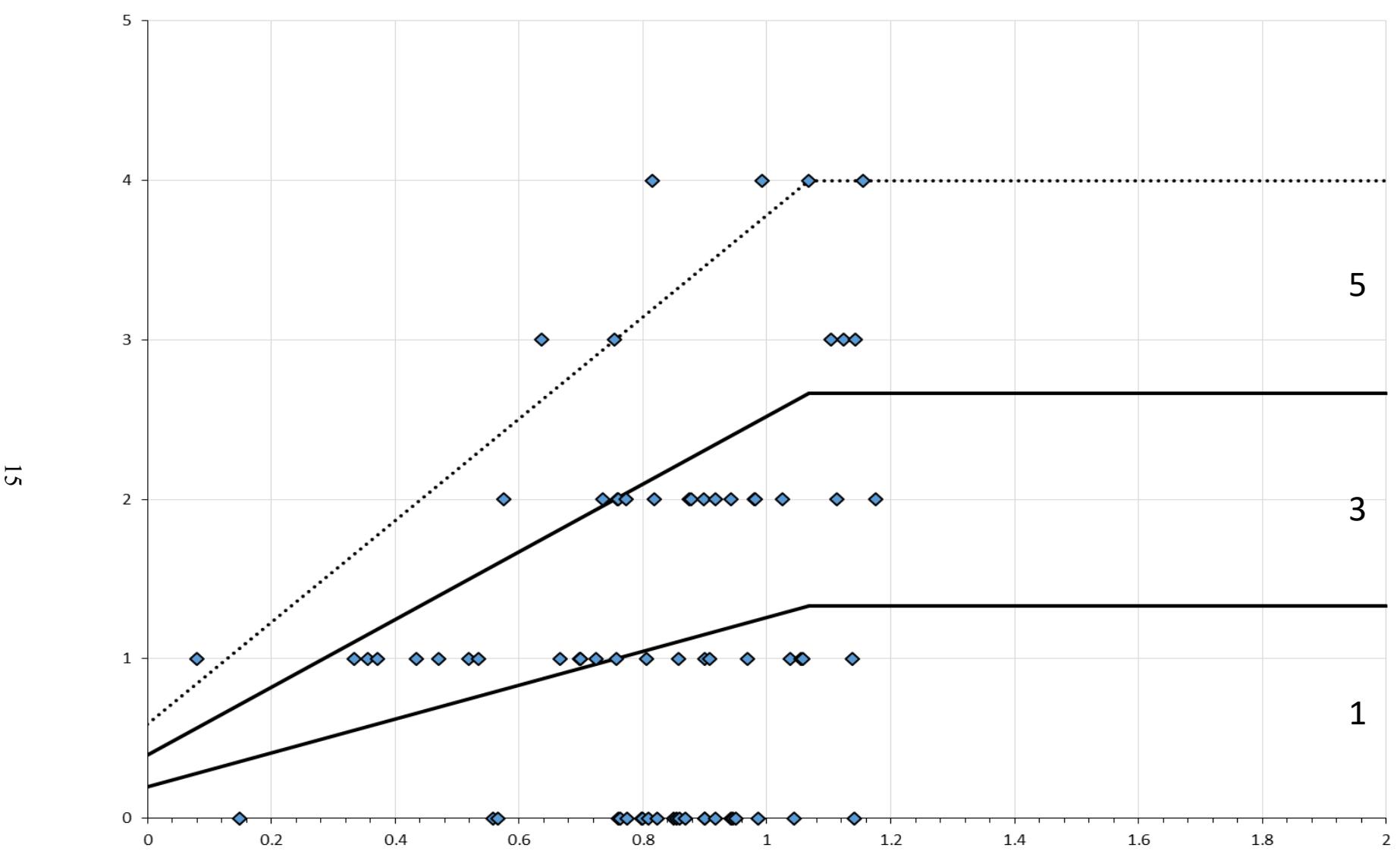
ACT3b - RGV. Number of native centrarchid species in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



ACT4 - RGV. Number of native insectivorous cyprinid species in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).

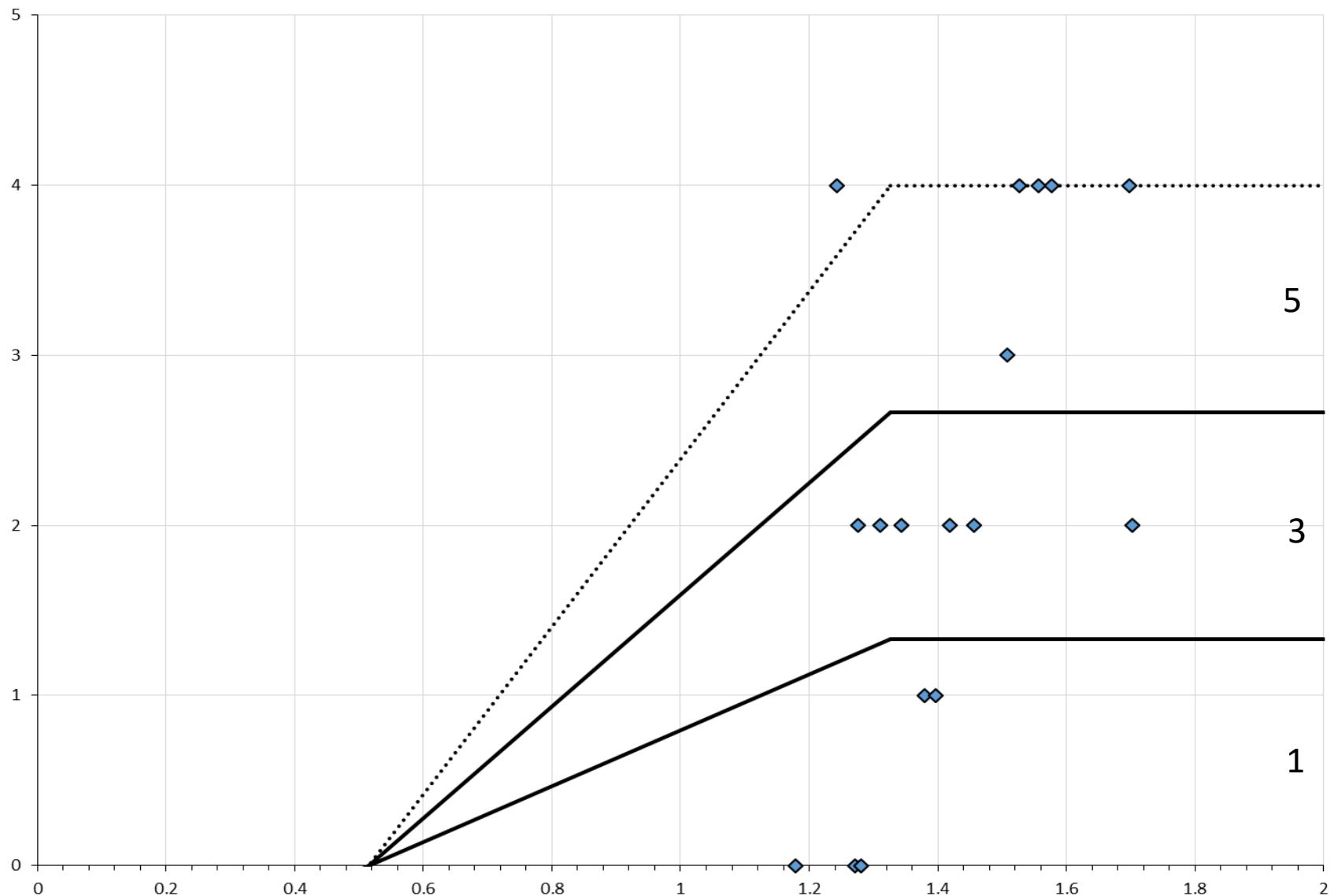


ACT5 - RGV. Number of native round-bodied sucker species in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).

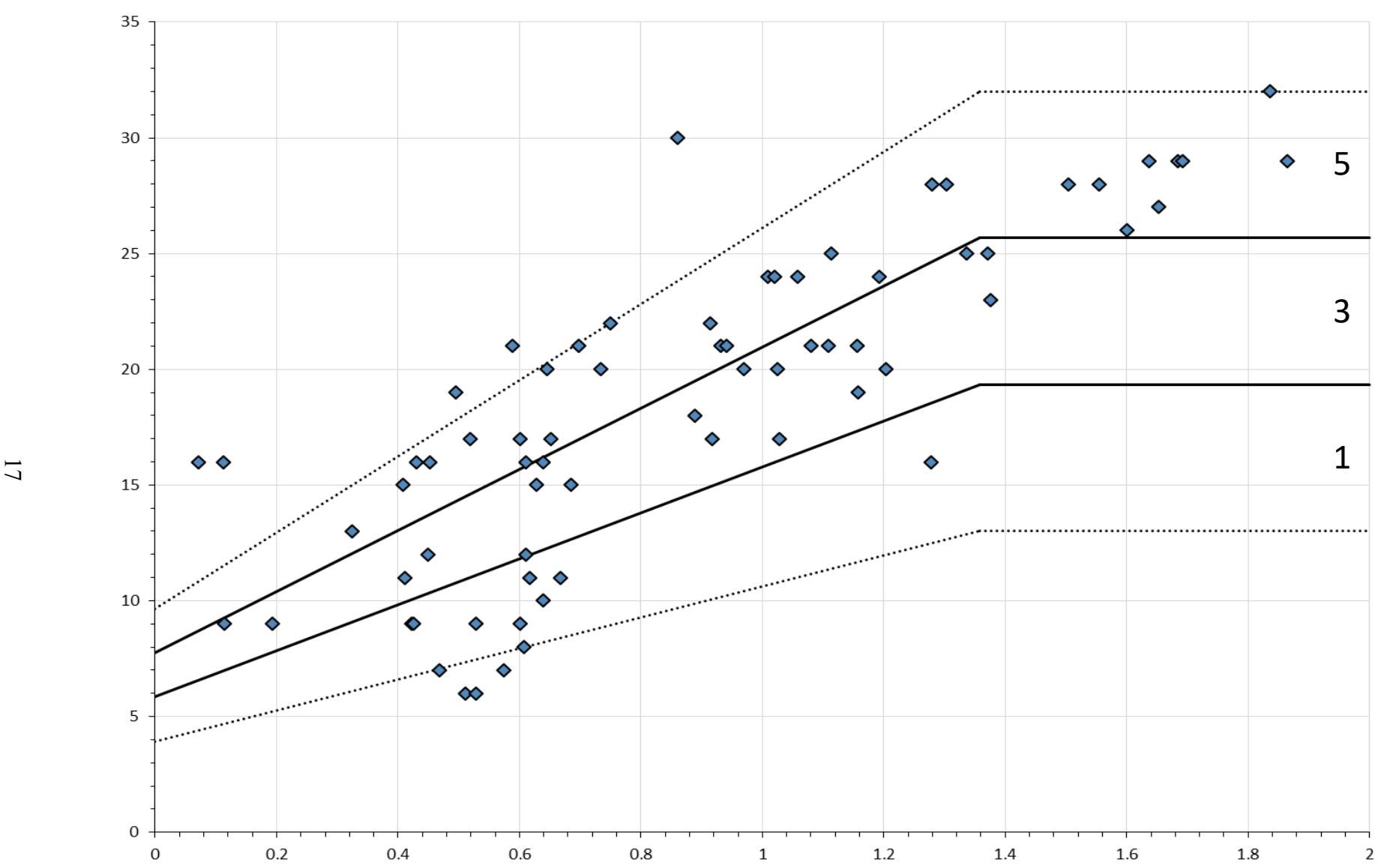


ACT6a - RGV. Total number of species ranked as sensitive at headwater sites (<15 square miles drainage basin area) in the Ridge and Valley ecoregion of the Coosa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).

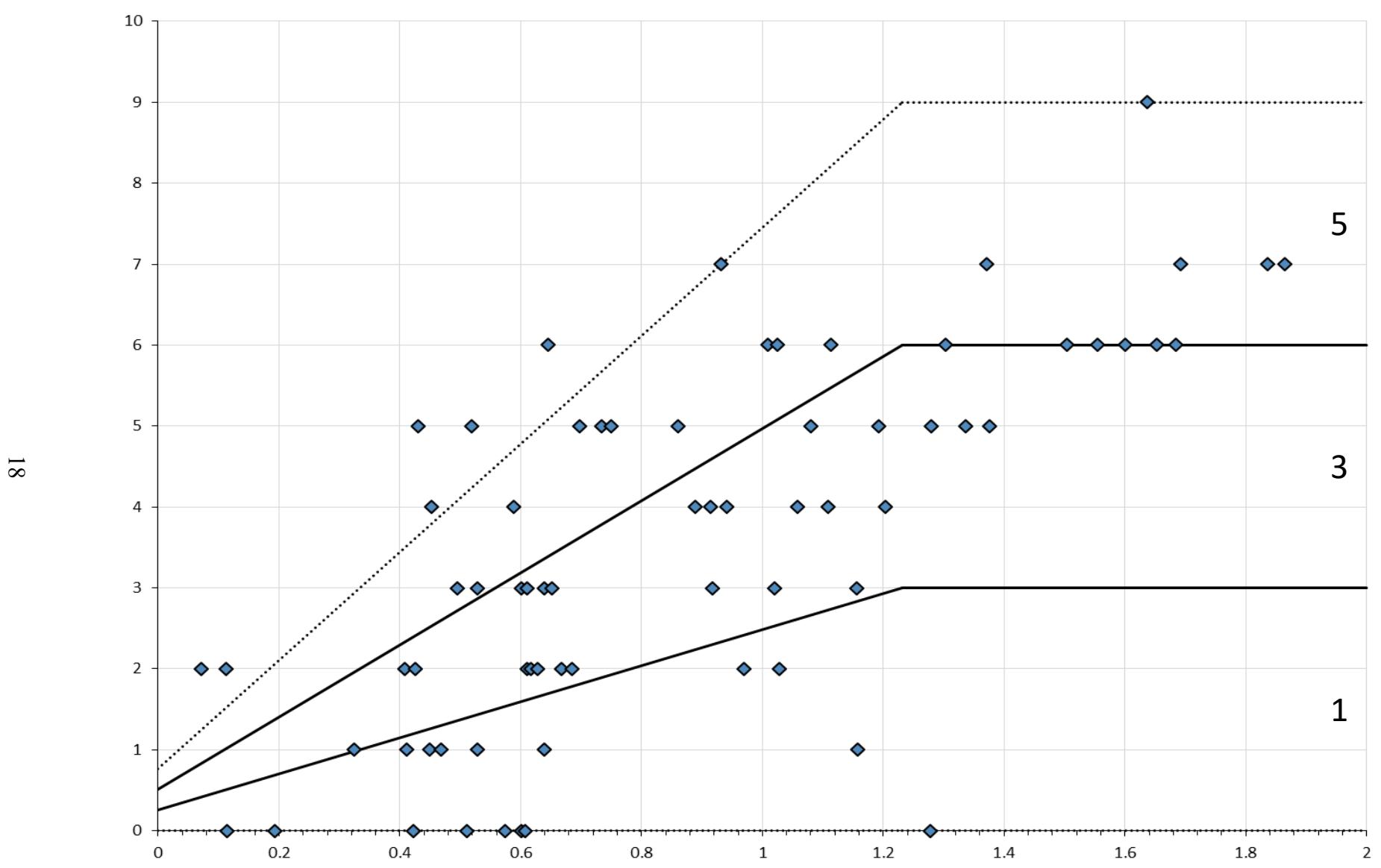
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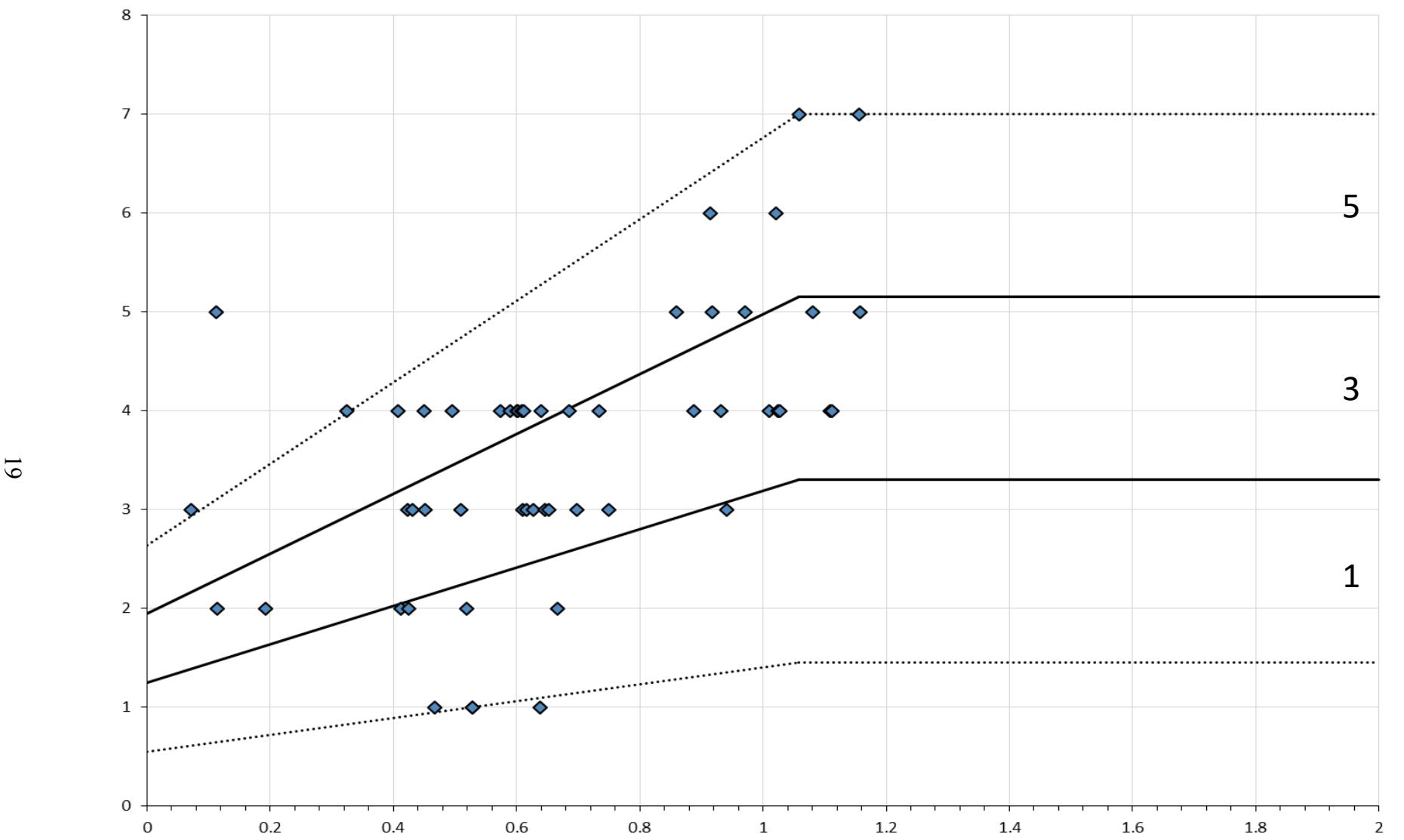
ACT6b - RGV. Number of species ranked as intolerant in the Ridge and Valley ecoregion of the Coosaa drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



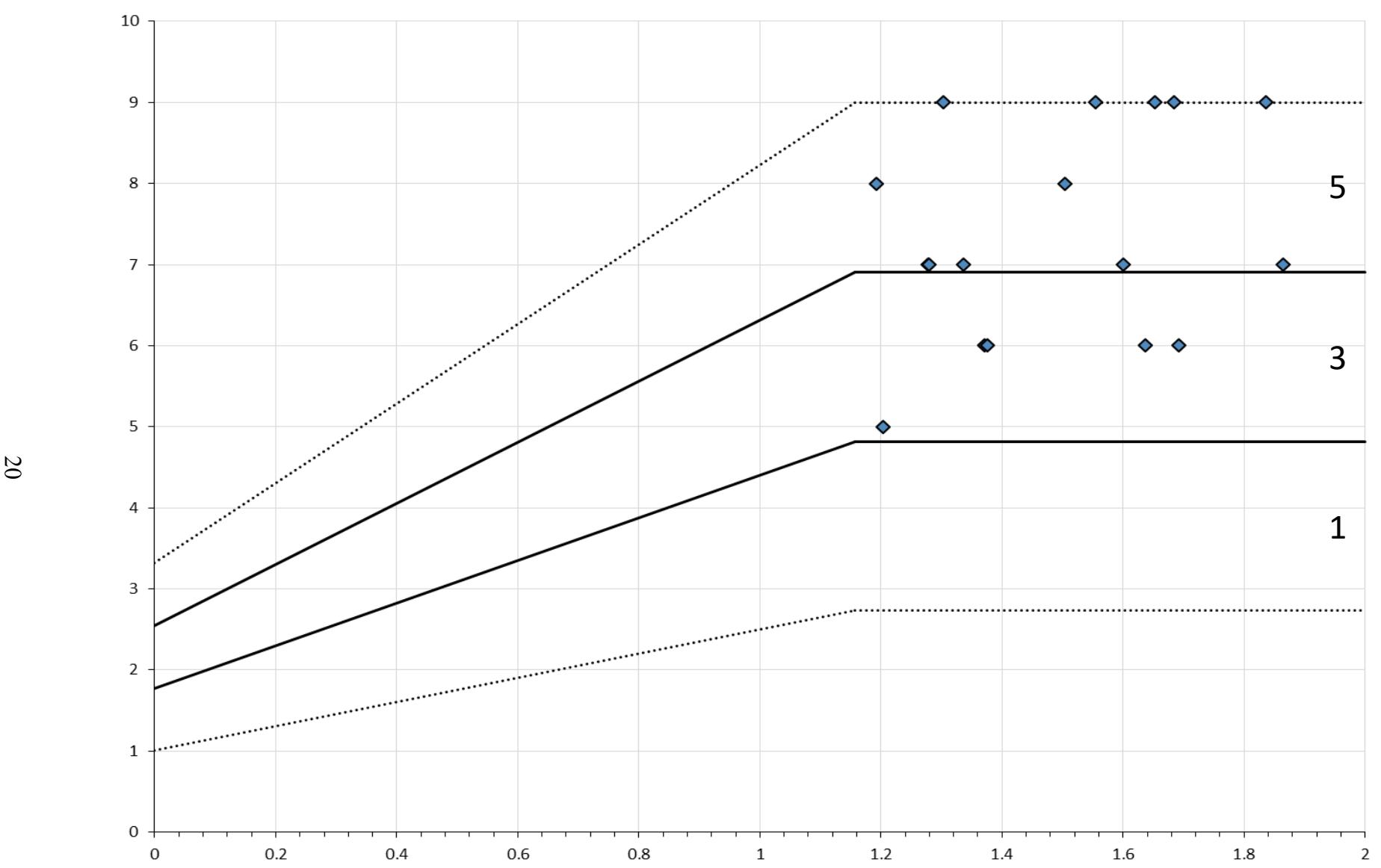
TEN1 - RGV. Total number of native species in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



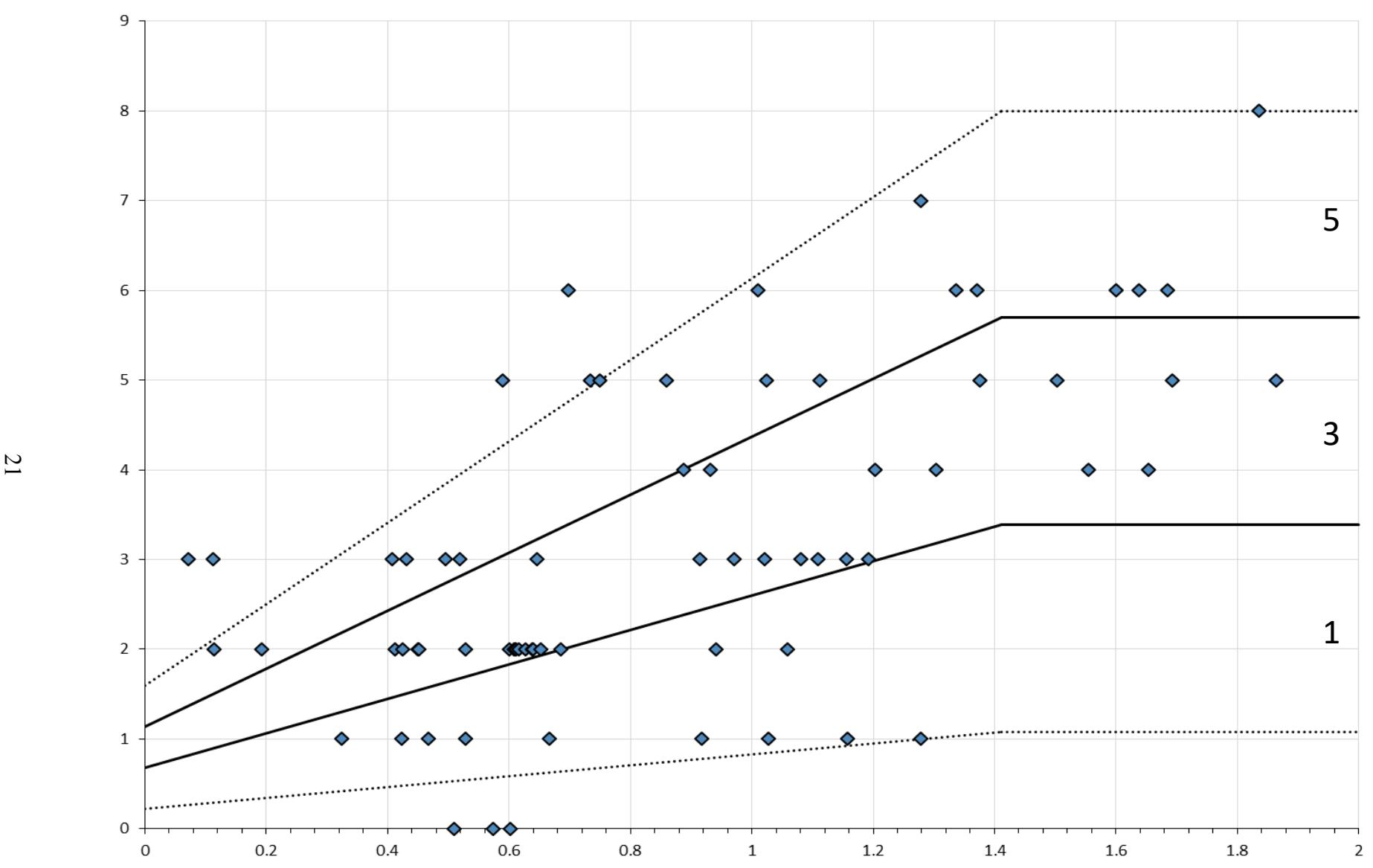
TEN2 - RGV. Number of benthic invertivore species in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



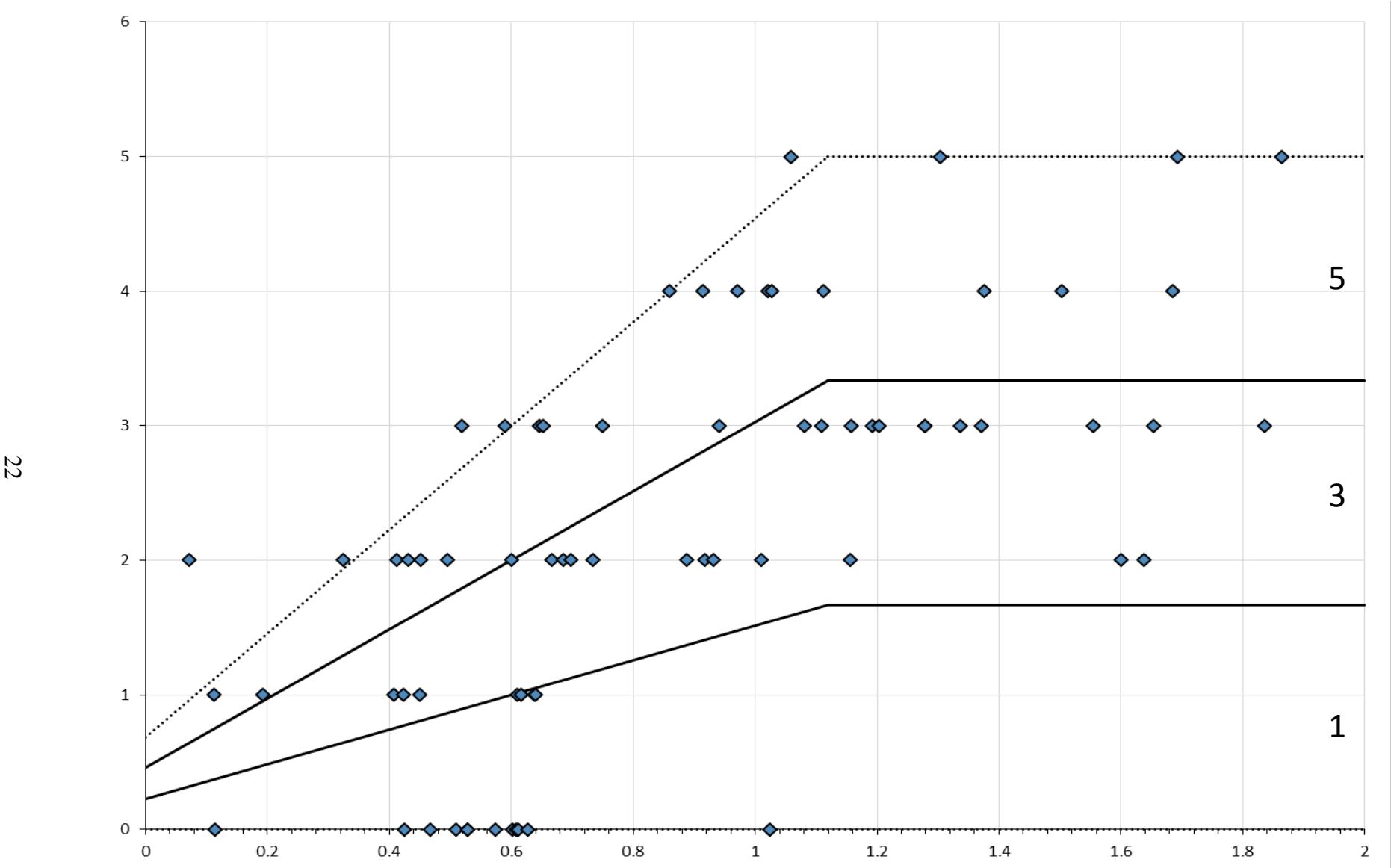
TEN3a - RGV. Number of native sunfish species in headwater streams (<15 square miles drainage basin area) in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



TEN3b - RGV. Number of native centrarchid species in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).

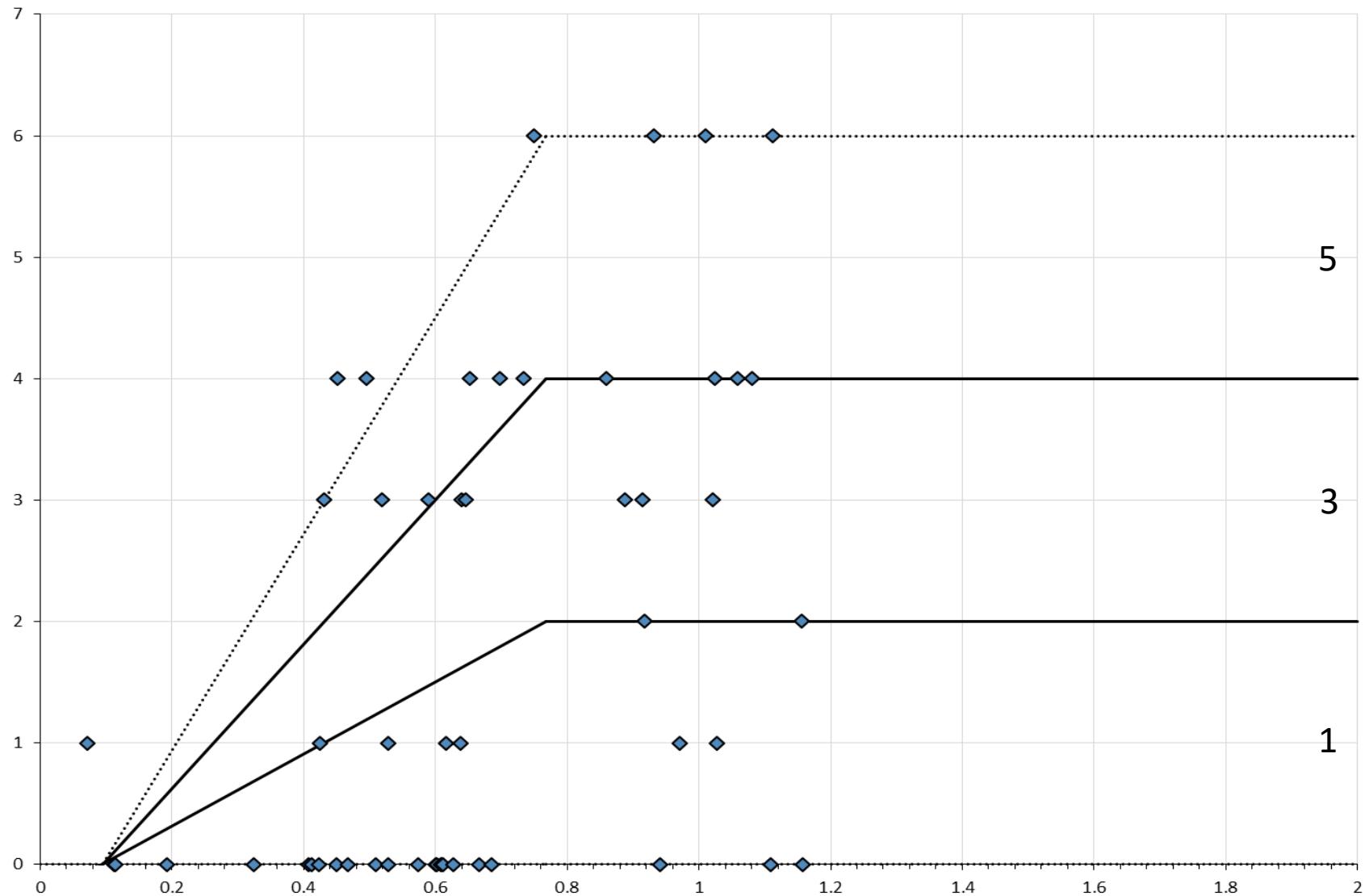


TEN4 - RGV. Number of native insectivorous cyprinid species in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).



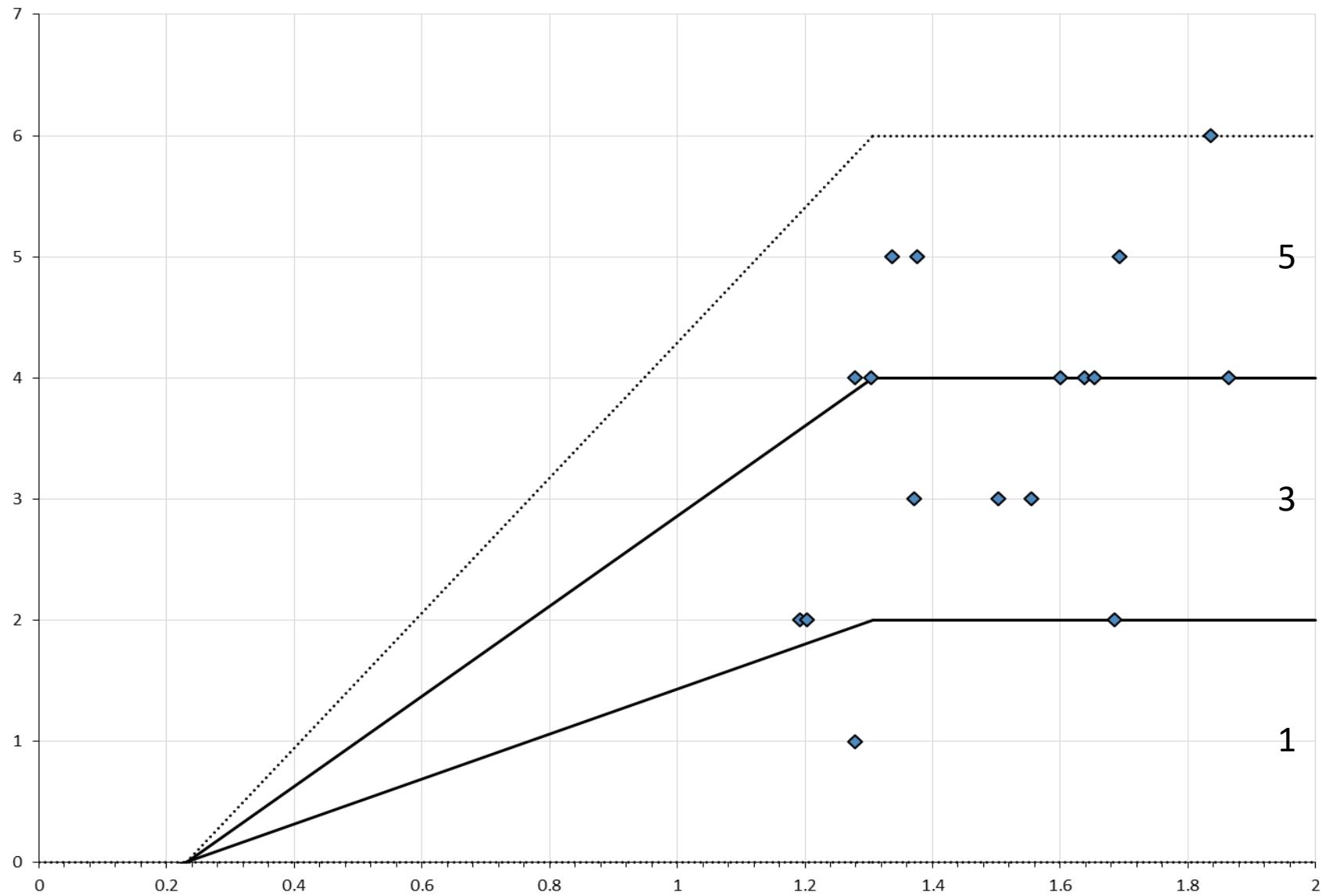
TEN5 - RGV. Number of native round-bodied sucker species in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).

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TEN6a - RGV. Total number of species ranked as sensitive at headwater sites (<15 square miles drainage basin area) in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed valued of the drainage basin area (square miles).

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TEN6b - RGV. Number of species ranked as intolerant in the Ridge and Valley ecoregion of the Tennessee drainage basin plotted against the log (base 10) transformed value of the drainage basin area (square miles).

Fish List for the Ridge and Valley Ecoregion of Georgia. (Updated December, 2019)

Species	Tolerance Ranking	Feeding Guild	Species Category	Drainage Basin
Petromyzontidae				
Ohio Lamprey <i>Ichthyomyzon bdellium</i>		PR		TEN
Chestnut Lamprey* <i>Ichthyomyzon castaneus</i>				
Southern Brook Lamprey* <i>Ichthyomyzon gagei</i>		HB		COO
Mountain Brook Lamprey* <i>Ichthyomyzon greeleyi</i>	INT	HB		TEN
Least Brook Lamprey* <i>Lampetra aepyptera</i>	INT	HB		COO, TEN
American Brook Lamprey* <i>Lethenteron appendix</i>		HB		TEN
Acipenseridae				
Lake Sturgeon <i>Acipenser fulvescens</i>		IN		COO
Lepisosteidae				
Spotted Gar <i>Lepisosteus oculatus</i>		CR		COO, TEN
Longnose Gar <i>Lepisosteus osseus</i>		CR		COO, TEN
Hiodontidae				
Mooneye <i>Hiodon tergisus</i>		IN		COO
Clupeidae				
Skipjack Herring <i>Alosa chrysochloris</i>		CR		TEN
Gizzard Shad* <i>Dorosoma cepedianum</i>		OM		COO, TEN
Threadfin Shad <i>Dorosoma petenense</i>		OM		COO, TEN
Cyprinidae				
Largescale Stoneroller* <i>Campostoma oligolepis</i>		HB		COO, TEN
Goldfish <i>Carassius auratus</i>		OM		EXOTIC

Fish List for the Ridge and Valley Ecoregion of Georgia.

Species	Tolerance Ranking	Feeding Guild	Species Category	Drainage Basin
Grass Carp <i>Ctenopharyngodon idella</i>		HB		EXOTIC
Blue Shiner <i>Cyprinella caerulea</i>	INT	IC	SMM	COO
Alabama Shiner* <i>Cyprinella callistia</i>		IC	SMM	COO
Whitetail Shiner* <i>Cyprinella galactura</i>		IC	SMM	TEN
Red Shiner* <i>Cyprinella lutrensis</i>		OM		EXOTIC
Spotfin Shiner* <i>Cyprinella spiloptera</i>		IC		TEN
Tricolor Shiner* <i>Cyprinella trichroistia</i>		IC		COO
Blacktail Shiner* <i>Cyprinella venusta</i>		IC		COO
Common Carp* <i>Cyprinus carpio</i>		GE		EXOTIC
Flame Chub* <i>Hemitremia flammea</i>		IC		TEN
Bigeye Chub* <i>Hybopsis amblops</i>		IC	SMM	TEN
Lined Chub* <i>Hybopsis lineapunctata</i>	INT	IC	SMM	COO
Striped Shiner* <i>Luxilus chryscephalus</i>		IC		COO, TEN
Warpaint Shiner* <i>Luxilus coccogenis</i>		IC		TEN
Scarlet Shiner <i>Lythrurus fasciolaris</i>	HWI	IC		TEN
Mountain Shiner* <i>Lythrurus lirus</i>	INT	IC		COO, TEN

Fish List for the Ridge and Valley Ecoregion of Georgia.

Species	Tolerance Ranking	Feeding Guild	Species Category	Drainage Basin
Coosa Chub <i>Macrhybopsis etnieri</i>	INT	IC	SMM	COO
Silver Chub <i>Macrhybopsis storeriana</i>		IC	SMM	COO
River Chub* <i>Nocomis micropogon</i>		OM		TEN
Golden Shiner* <i>Notemigonus crysoleucas</i>		GE		COO, TEN
Popeye Shiner <i>Notropis ariommus</i>		IC		TEN
Burrhead Shiner* <i>Notropis asperifrons</i>	INT	IC		COO
Emerald Shiner <i>Notropis atherinoides</i>		IC		TEN
Rainbow Shiner* <i>Notropis chrosomus</i>	HWI	IC		COO
Tennessee Shiner* <i>Notropis leuciodus</i>		IC		TEN
Silver Shiner <i>Notropis photogenis</i>		IC		TEN
Silverstripe Shiner* <i>Notropis stilbius</i>		IC		COO
Telescope Shiner* <i>Notropis telescopus</i>		IC		TEN
Mimic Shiner* <i>Notropis volucellus</i>		IC	SMM	COO, TEN
Coosa Shiner* <i>Notropis xaenocephalus</i>		IC		COO
Riffle Minnow* <i>Phenacobius catostomus</i>	INT	IC	SMM	COO
Stargazing Minnow* <i>Phenacobius uranops</i>	INT	IC	SMM	TEN
Tennessee Dace* <i>Chrosomus tennesseensis</i>		HB		TEN

Fish List for the Ridge and Valley Ecoregion of Georgia.

Species	Tolerance Ranking	Feeding Guild	Species Category	Drainage Basin
Bluntnose Minnow* <i>Pimephales notatus</i>		OM		TEN
Fathead Minnow <i>Pimephales promelas</i>		OM		EXOTIC
Bullhead Minnow* <i>Pimephales vigilax</i>		OM		COO, TEN
Blacknose Dace* <i>Rhinichthys atratulus</i>	IC	SMM		COO, TEN
Creek Chub* <i>Semotilus atromaculatus</i>		GE		COO, TEN
Catostomidae				
River Carpsucker <i>Carpoides carpio</i>				TEN
Quillback <i>Carpoides cyprinus</i>		OM		TEN
White Sucker* <i>Catostomus commersoni</i>		IN	RBS	TEN
Alabama Hogsucker* <i>Hypentelium etowanum</i>		IN	RBS	COO
Northern Hogsucker* <i>Hypentelium nigricans</i>		IN	RBS	TEN
Smallmouth Buffalo <i>Ictiobus bubalus</i>		OM		COO, TEN
Spotted Sucker* <i>Minytrema melanops</i>		IN	RBS	COO, TEN
Silver Redhorse <i>Moxostoma anisurum</i>		IN	RBS	TEN
River Redhorse <i>Moxostoma carinatum</i>	INT	IN	RBS	COO, TEN
Black Redhorse* <i>Moxostoma duquesnei</i>	INT	IN	RBS	COO, TEN
Golden Redhorse* <i>Moxostoma erythrurum</i>		IN	RBS	COO, TEN
Blacktail Redhorse* <i>Moxostoma poecilurum</i>		IN	RBS	COO

Fish List for the Ridge and Valley Ecoregion of Georgia.

Species	Tolerance Ranking	Feeding Guild	Species Category	Drainage Basin
Ictaluridae				
Snail Bullhead* <i>Ameiurus brunneus</i>		GE		COO
Black Bullhead* <i>Ameiurus melas</i>		GE		COO, TEN
Yellow Bullhead* <i>Ameiurus natalis</i>		GE		COO, TEN
Brown Bullhead* <i>Ameiurus nebulosus</i>		GE		COO, TEN
Blue Catfish* <i>Ictalurus furcatus</i>		CR		COO, TEN
Channel Catfish* <i>Ictalurus punctatus</i>		GE		COO, TEN
Speckled Madtom* <i>Noturus leptacanthus</i>	IN	BI		COO
Mountain Madtom <i>Noturus eleutherus</i>	IN	BI		TEN
Yellowfin Madtom <i>Noturus flavipinnis</i>	IN	BI		TEN
Frecklebelly Madtom <i>Noturus munitus</i>	IN	BI		COO
Flathead Catfish* <i>Pylodictis olivaris</i>	CR			COO, TEN
Esocidae				
Redfin Pickerel <i>Esox americanus</i>	CR			COO
Chain Pickerel* <i>Esox niger</i>	CR			COO
Salmonidae				
Rainbow Trout* <i>Oncorhynchus mykiss</i>	CR			EXOTIC
Brown Trout <i>Salmo trutta</i>	CR			EXOTIC
Brook Trout <i>Salvelinus fontinalis</i>	CR			COO**, TEN

Fish List for the Ridge and Valley Ecoregion of Georgia.

Species	Tolerance Ranking	Feeding Guild	Species Category	Drainage Basin
Fundulidae				
Northern Studfish* <i>Fundulus catenatus</i>	INT	IN		TEN
Blackspotted Topminnow* <i>Fundulus olivaceus</i>		IN		COO, TEN
Southern Studfish* <i>Fundulus stellifer</i>		IN		COO
Poeciliidae				
Mosquitofish* <i>Gambusia sp.</i>		OM		COO, TEN
Atherinidae				
Brook Silversides* <i>Labidesthes sicculus</i>		IN		TEN
Cottidae				
Mottled Sculpin <i>Cottus bairdi</i>		GE	BI	TEN
Banded Sculpin* <i>Cottus carolinae</i>		GE	BI	COO, TEN
Percichthyidae				
White Bass <i>Morone chrysops</i>		CR		COO**
Yellow Bass <i>Morone mississippiensis</i>		CR		COO**
Striped Bass <i>Morone saxatilis</i>		CR		COO
Centrarchidae				
Shadow Bass* <i>Ambloplites ariommus</i>	INT	CR	SF	COO
Rock Bass* <i>Ambloplites rupestris</i>	INT	CR	SF	TEN
Redbreast Sunfish* <i>Lepomis auritus</i>		IN	SF	COO**, TEN**
Green Sunfish* <i>Lepomis cyanellus</i>		GE	SF	COO, TEN
Warmouth* <i>Lepomis gulosus</i>		CR	SF	COO, TEN

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Bluegill* <i>Lepomis macrochirus</i>		IN	SF	COO, TEN
Longear Sunfish* <i>Lepomis megalotis</i>		IN	SF	COO, TEN
Redear Sunfish* <i>Lepomis microlophus</i>		IN	SF	COO, TEN
Spotted Sunfish* <i>Lepomis punctatus</i>		IN	SF	COO, TAL
Redeye Bass* <i>Micropterus coosae</i>		CR	CENT	COO, TEN**
Smallmouth Bass* <i>Micropterus dolomieu</i>	INT	CR	CENT	TEN
Alabama Bass* <i>Micropterus henshalli</i>		CR	CENT	COO
Spotted Bass* <i>Micropterus punctulatus</i>		CR	CENT	TEN
Largemouth Bass* <i>Micropterus salmoides</i>		CR	CENT	COO, TEN
White Crappie* <i>Pomoxis annularis</i>		CR	CENT	COO, TEN
Black Crappie* <i>Pomoxis nigromaculatus</i>		CR	CENT	COO, TEN
Percidae				
Greenside Darter* <i>Etheostoma blennioides</i>		IN	BI	TEN
Rainbow Darter* <i>Etheostoma caeruleum</i>	HWI	IN	BI	TEN
Coosa Darter* <i>Etheostoma coosae</i>		IN	BI	COO
Coldwater Darter <i>Etheostoma ditrema</i>		IN	BI	COO
Black Darter* <i>Etheostoma duryi</i>		IN	BI	TEN
Blueside Darter* <i>Etheostoma jessiae</i>	INT	IN	BI	TEN

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Greenbreast Darter* <i>Etheostoma jordani</i>	INT	IN	BI	COO
Redline Darter* <i>Etheostoma rufilineatum</i>		IN	BI	TEN
Rock Darter <i>Etheostoma rupestre</i>		IN	BI	COO
Tennessee Snubnose Darter* <i>Etheostoma simoterum</i>		IN	BI	TEN
Speckled Darter* <i>Etheostoma stigmaeum</i>		IN	BI	COO
Trispot Darter* <i>Etheostoma trisella</i>	INT	IN	BI	COO
Banded Darter* <i>Etheostoma zonale</i>		IN	BI	TEN
Amber Darter <i>Percina antesella</i>		IN	BI	COO
Goldline Darter <i>Percina aurolineata</i>	INT	IN	BI	COO
Logperch* <i>Percina caprodes</i>	INT	IN	BI	TEN
Conasauga Logperch <i>Percina jenkinsi</i>		IN	BI	COO
Freckled Darter <i>Percina lenticula</i>		IN	BI	COO
Mobile Logperch* <i>Percina kathae</i>		IN	BI	COO
Bridled Darter <i>Percina kusha</i>	INT	IN	BI	COO
Dusky Darter* <i>Percina sciera</i>		IN	BI	TEN
River Darter <i>Percina shumardi</i>		IN	BI	COO
Blackbanded Darter* <i>Percina nigrofasciata</i>		IN	BI	COO

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Bronze Darter* <i>Percina palmaris</i>		IN	BI	COO
Snail Darter <i>Percina tanasi</i>		IN	BI	TEN
Yellow perch <i>Perca flavescens</i>		CR		EXOTIC
Sauger <i>Sander canadense</i>		CR		TEN
Walleye <i>Sander vitreum</i>		CR		COO, TEN
Sciaenidae				
Freshwater Drum* <i>Aplodinotus grunniens</i>		CR		COO, TEN

* = collected by Georgia DNR Stream Survey Team in the Ridge and Valley Ecoregion

Water Quality Tolerance: **HWI** = headwater intolerant; **INT** = intolerant

Feeding Guild: **CR** = top carnivore; **GE** = generalist; **HB** = herbivore; **IC** = insectivorous cyprinid; **IN** = insectivore/invertivore; **PR** = parasitic

Species Category: **BI** = benthic insectivore species; **CENT** = centrarchid species; **RBS** = round-bodied sucker species; **SF** = sunfish species; **SMM** = subterminal mouth minnow species;

Drainage Basin: **COO** = Coosa; **TEN** = Tennessee

EXOTIC = species introduced to Georgia

** = species introduced to the indicated drainage basin