

# Identification of Indiana Minnows



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# Fishes of Indiana by Family

|  | historical<br>species | extirpated<br>species | current<br>species | exotic<br>species |
|--|-----------------------|-----------------------|--------------------|-------------------|
| <b>Carps and Minnows</b>                     | <b>57</b>             | <b>1</b>              | <b>56</b>          | <b>6</b>          |
| <b>Perches</b>                               | <b>33</b>             | <b>4</b>              | <b>29</b>          | <b>0</b>          |
| <b>Suckers</b>                               | <b>21</b>             | <b>1</b>              | <b>20</b>          | <b>0</b>          |
| <b>Sunfishes</b>                             | <b>16</b>             | <b>0</b>              | <b>16</b>          | <b>0</b>          |
| <b>North American Catfishes</b>              | <b>13</b>             | <b>0</b>              | <b>13</b>          | <b>1</b>          |
| <b>Trouts and Salmons</b>                    | <b>15</b>             | <b>3</b>              | <b>12</b>          | <b>5</b>          |
| <b>Lampreys</b>                              | <b>7</b>              | <b>0</b>              | <b>7</b>           | <b>1</b>          |
| <b>Herrings</b>                              | <b>5</b>              | <b>1</b>              | <b>4</b>           | <b>1</b>          |
| <b>Sculpins</b>                              | <b>4</b>              | <b>0</b>              | <b>4</b>           | <b>0</b>          |
| <b>Topminnows</b>                            | <b>4</b>              | <b>0</b>              | <b>4</b>           | <b>0</b>          |
| <b>Temperate Basses</b>                      | <b>4</b>              | <b>0</b>              | <b>4</b>           | <b>2</b>          |
| <b>Gars</b>                                  | <b>4</b>              | <b>1</b>              | <b>3</b>           | <b>0</b>          |
| <b>Pikes</b>                                 | <b>3</b>              | <b>0</b>              | <b>3</b>           | <b>0</b>          |
| <b>Sticklebacks</b>                          | <b>3</b>              | <b>0</b>              | <b>3</b>           | <b>1</b>          |
| <b>18 other families with 2 or 1 species</b> |                       |                       |                    |                   |
| <b>Totals:</b>                               | <b>211</b>            | <b>11</b>             | <b>200</b>         | <b>22</b>         |

# Indiana Cyprinidae

- *Notropis dorsalis*, *Cyprinella lutrensis*, *Couesius plumbeus* – hypothetical species by Gerking (1945)
- *Campostoma oligolepis* (did reference two subspecies – *anomalum anomalum* and *anomalum pullum*), *Hypophthalmichthys molitrix*, *H. nobilis*, *Ctenopharyngodon idella*, *Lythrurus fumeus*, *Scardinius erythrophthalmus* - not collected/referenced by Gerking (1945)
- *Notropis ariommmus* now considered extirpated
- 2 species endangered (*Clinostomus elongatus*, *Hybopsis amnis*), 3 species special concern (*Notropis anogenus*, *Notropis dorsalis*, *Rhinichthys cataractae*)

# Indiana Cyprinidae

- *Couesius plumbeus* (Lake Chub)
- *Cyprinella lutrensis* (Red Shiner)
- *Hybognathus hayi* (Cypress Minnow)
  - *Hybopsis amnis* (Pallid Shiner)
- *Notropis anogenus* (Pugnose Shiner)
- *Notropis ariommus* (Popeye Shiner)
- *Notropis dorsalis* (Bigmouth Shiner)
- *Notropis shumardi* (Silverband Shiner)
- *Scardinius erythrophthalmus* (Rudd)

Lake Michigan drainage - 25 (31) extant species



Kankakee drainage  
(Mississippi River)



26 (32) extant species



Lake Erie  
Drainage

25 (28) extant species

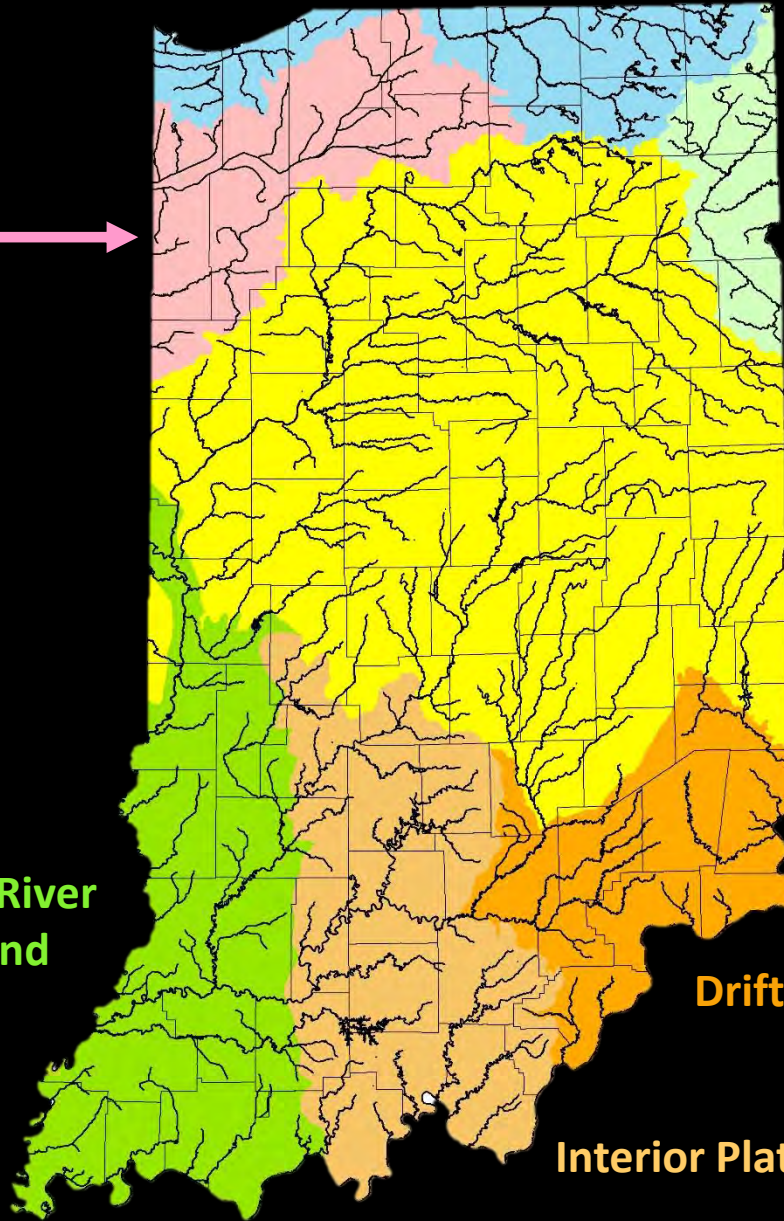
Ohio River  
Drainage

48 (53) extant species

Interior River  
Lowland

Drift Plains

Interior Plateau



# Cyprinidae Family Identification

body covered with smooth scales, but no scales on head

dorsal fin without spines and with 8 principal rays\*

no adipose fin

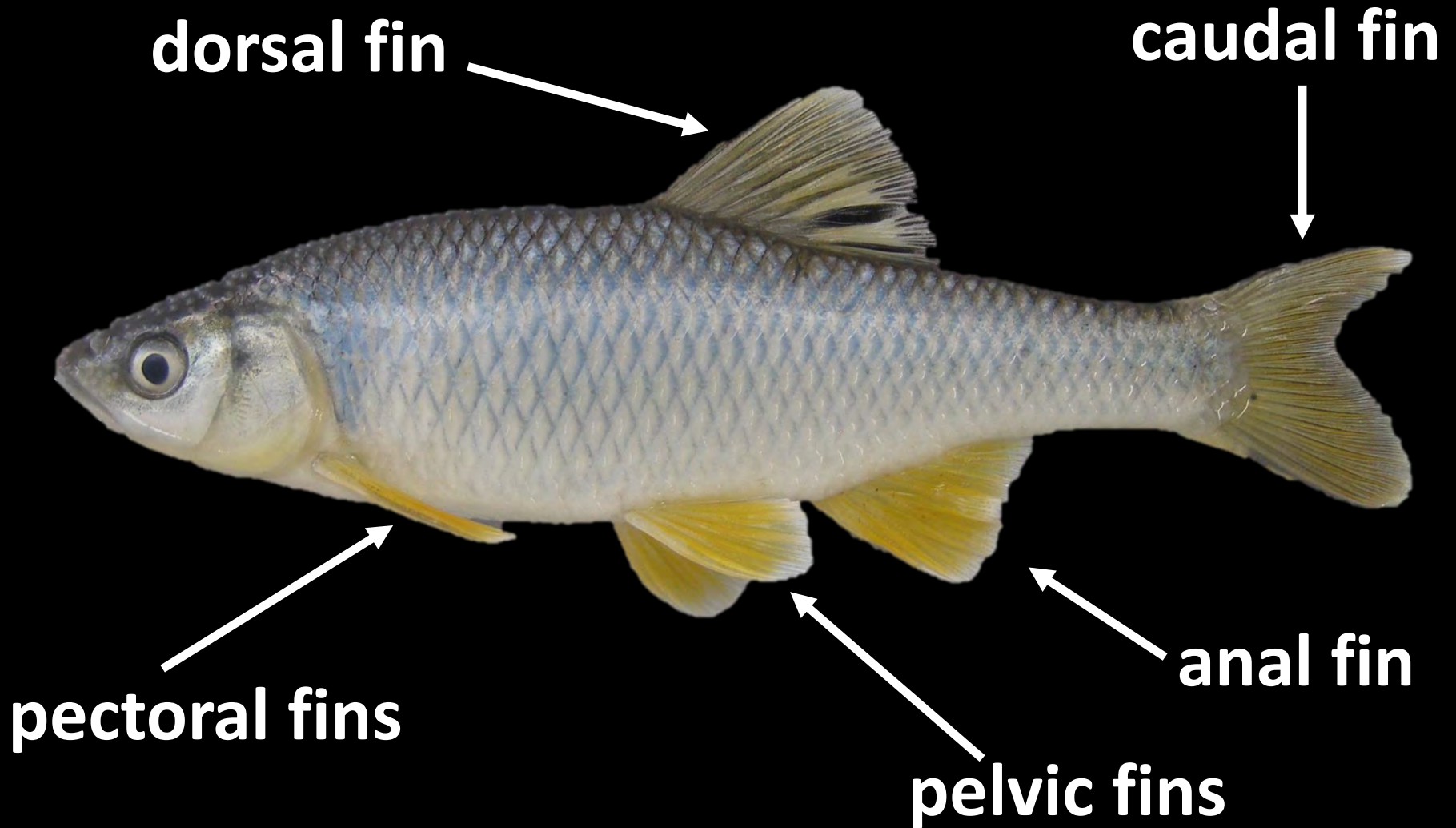
jaws without teeth

16 or fewer principal rays in anal fin



\*except Common Carp, Goldfish, and Pugnose Minnow

# Minnow Morphology

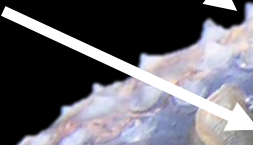


# Minnow Morphology

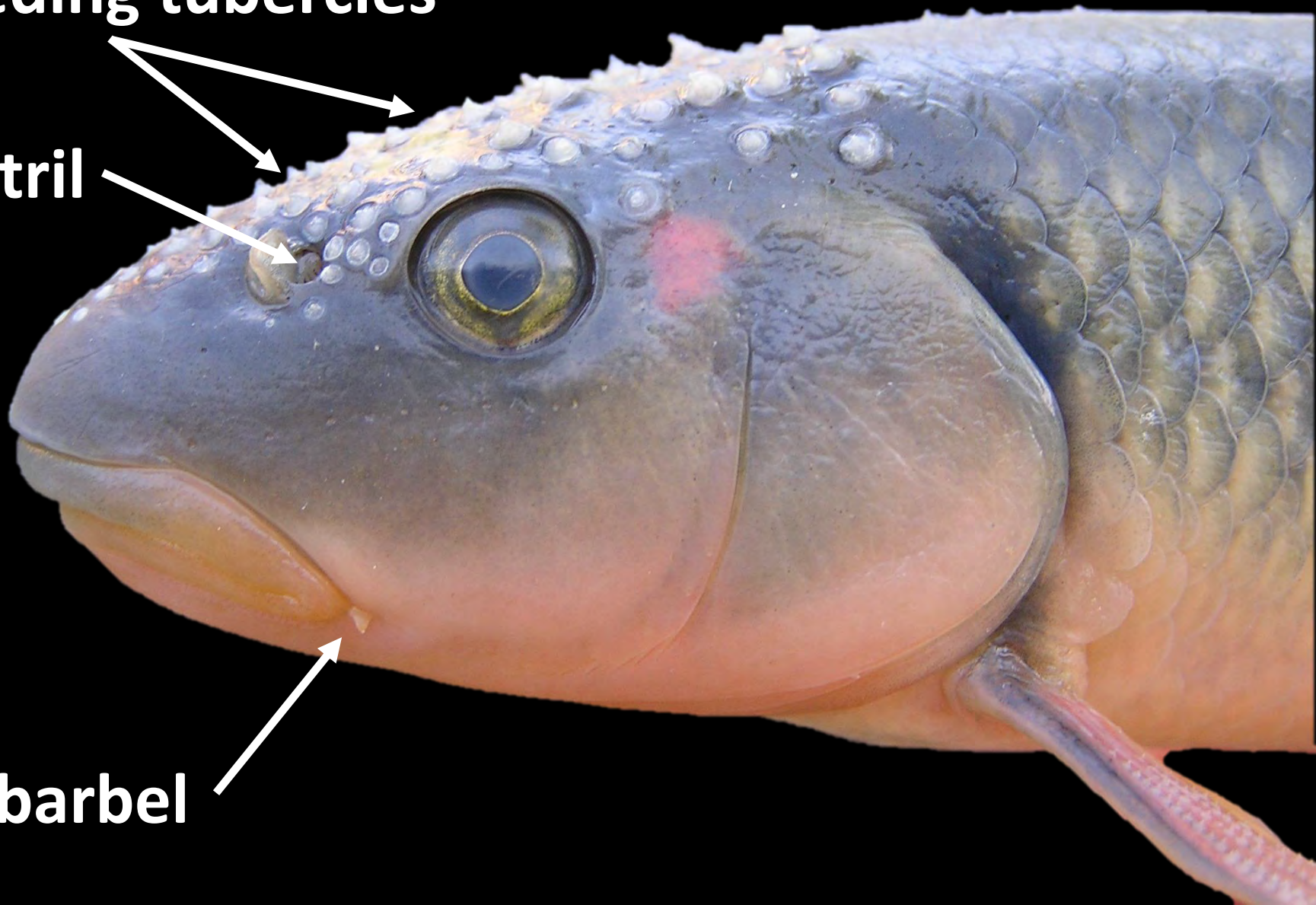
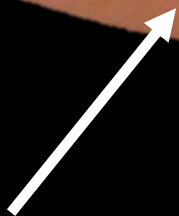
breeding tubercles



nostril

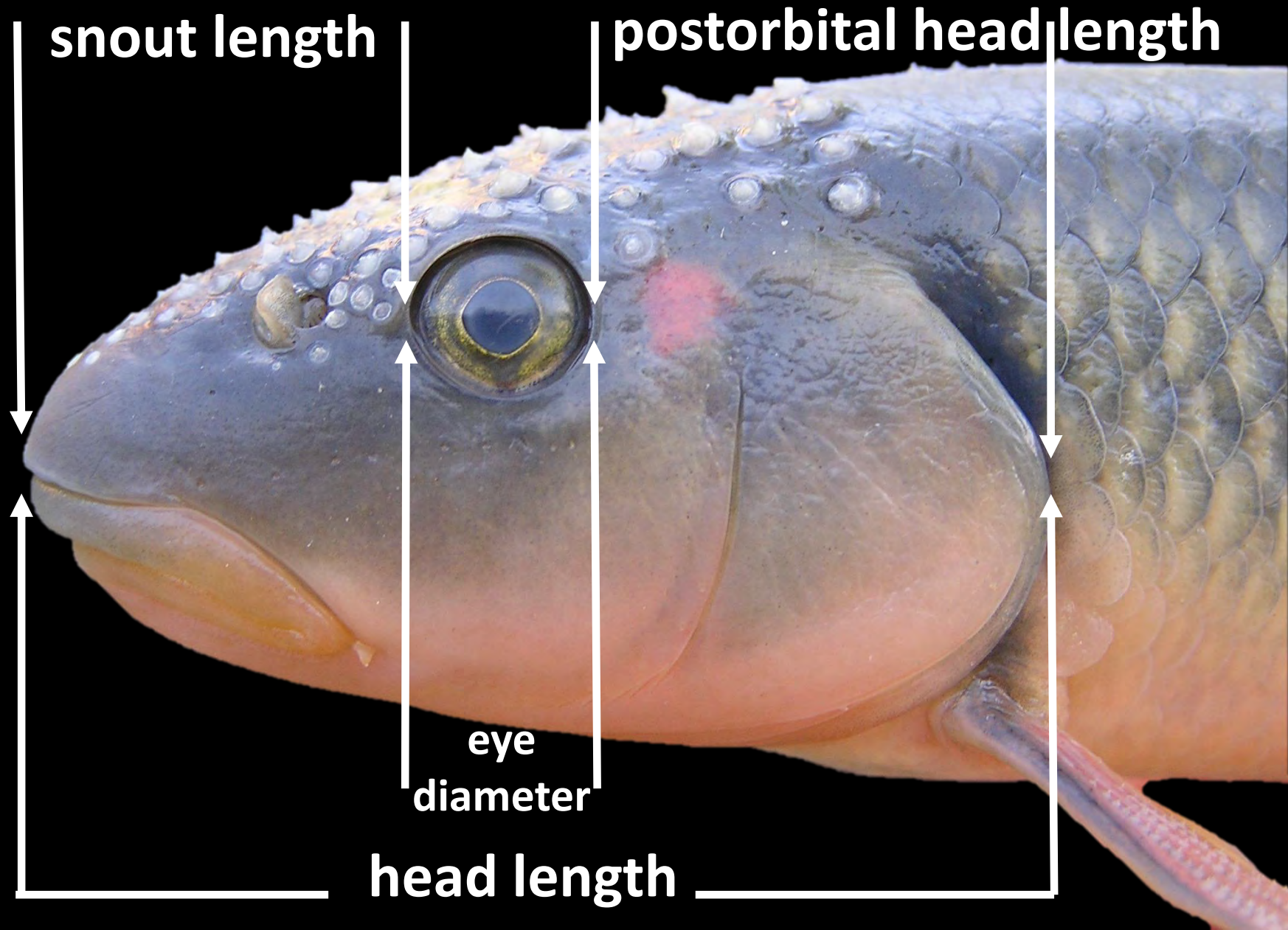


barbel



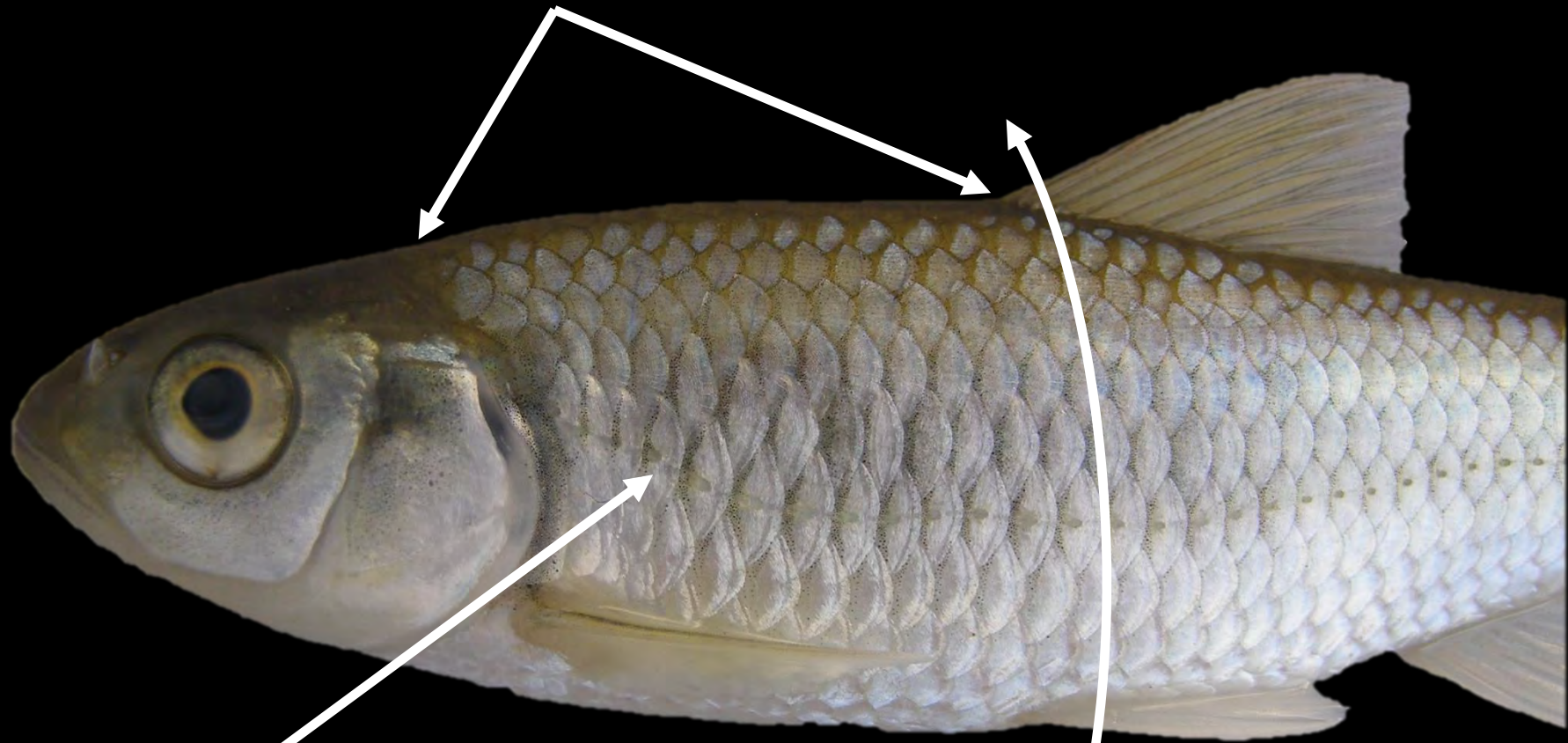


# Minnow Morphology



# Minnow Morphology

pre-dorsal scales



lateral line scales

scale rows  
around body

# Minnow Morphology



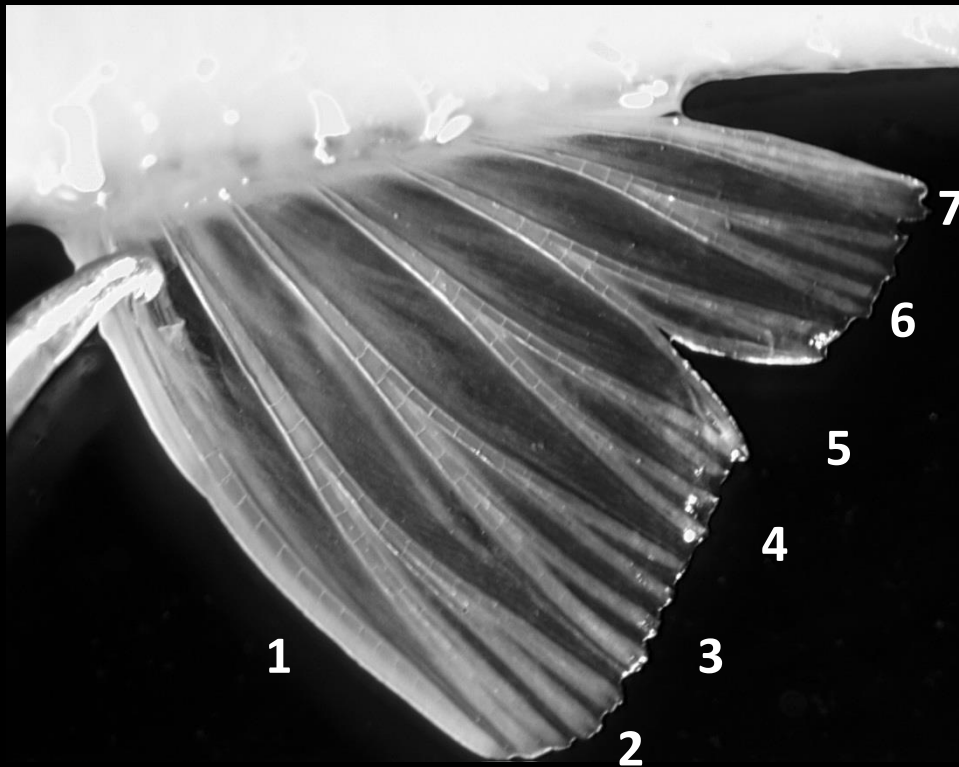
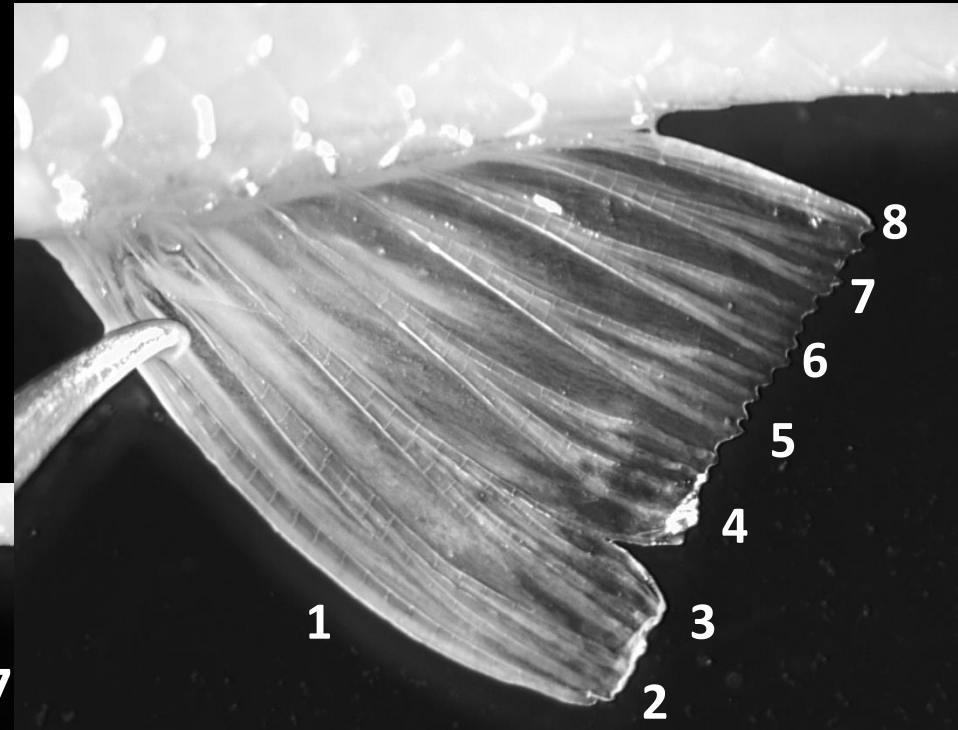
**lateral line pores bounded by pigment**

# Minnow Morphology



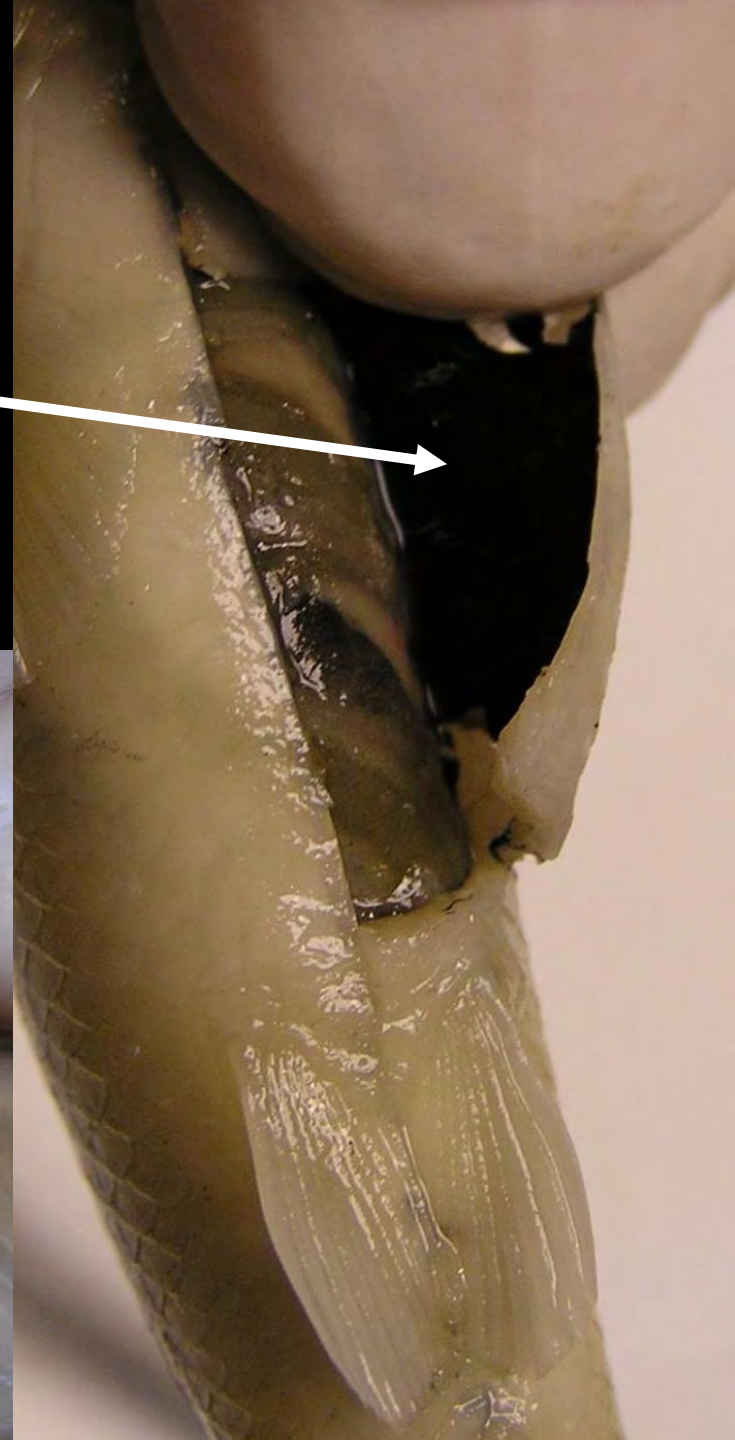
# Minnow Morphology

anal fin ray  
counts



# Minnow Morphology

peritoneum –  
gut lining



# Key to the Cyprinidae of Indiana

1a. saw-toothed spine at origin of dorsal and anal fins/dorsal fin with  $\geq 15$  rays

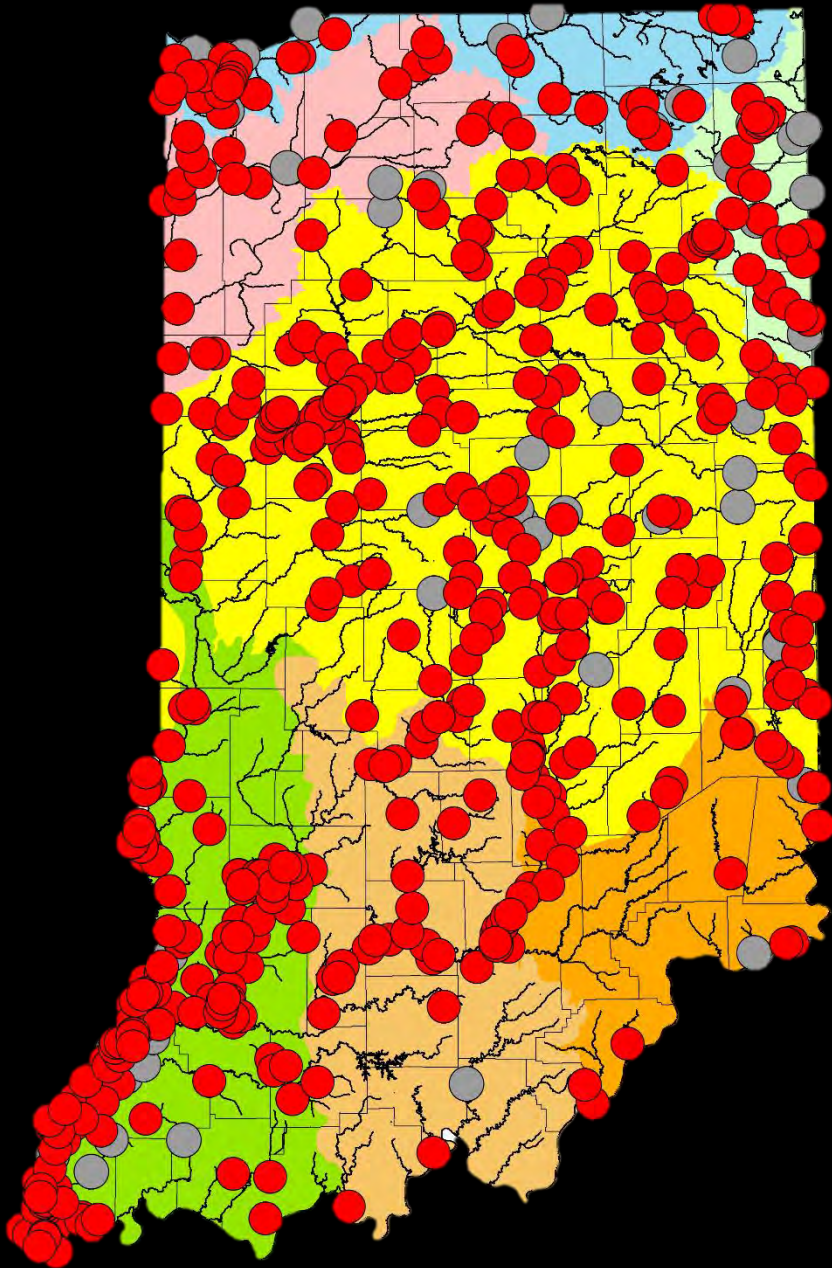


*Cyprinus carpio* (Common Carp)

*Carassius auratus* (Goldfish)

1b. no saw-toothed spine at origin of dorsal and anal fins/dorsal fin with  $\geq 15$  rays.....go to 3

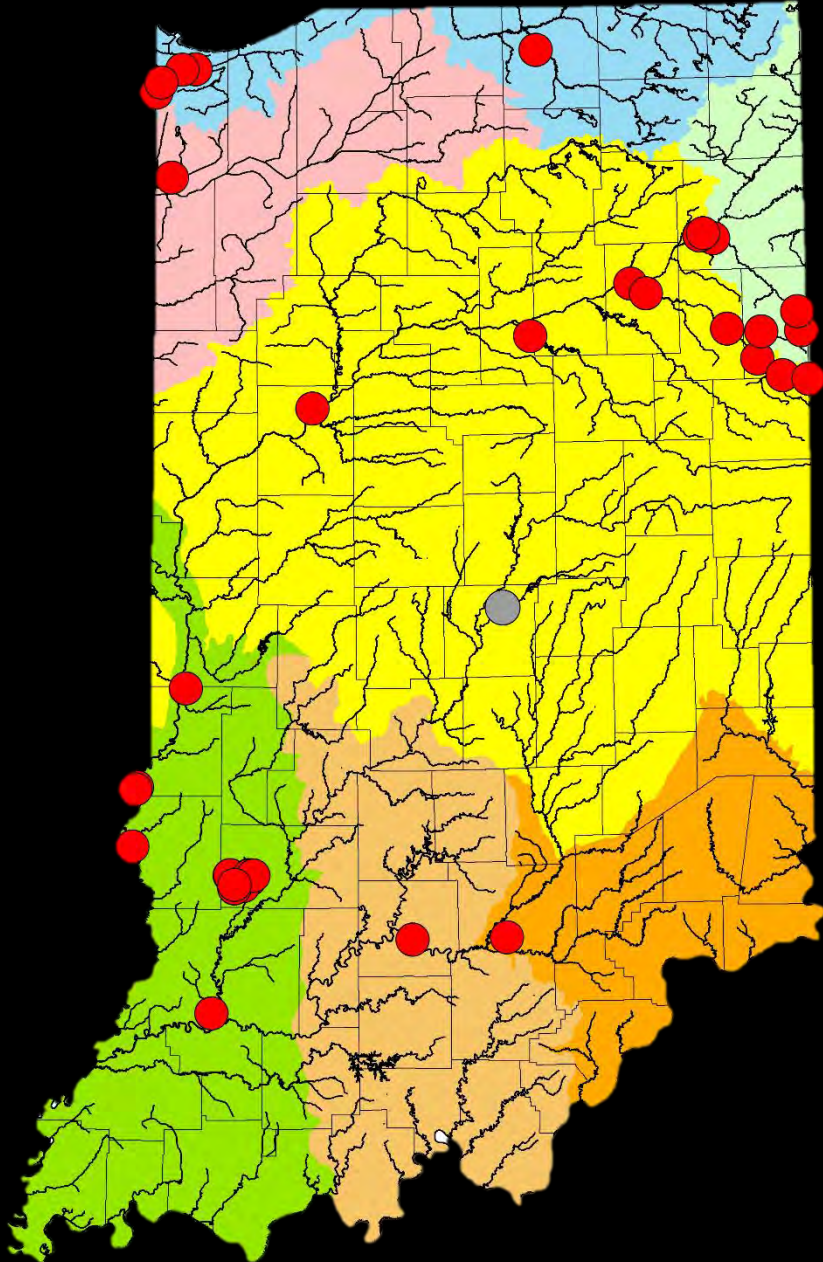
# *Cyprinus carpio* (Common Carp)



2a. upper jaw with 2 barbels on each side



# *Carassius auratus* (Goldfish)



2b. upper jaw without barbels

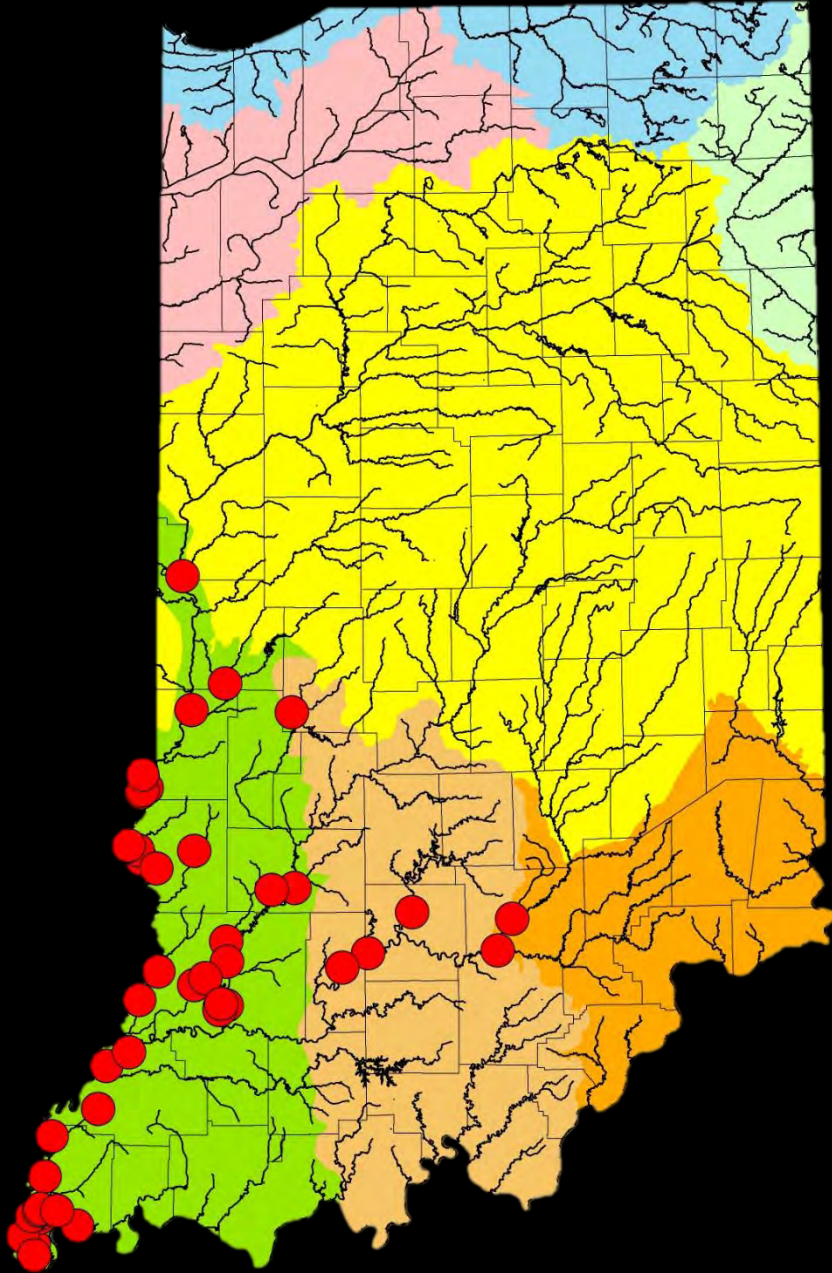
3a. distance from anal fin origin to base of caudal fin going 3 times or more into distance from anal fin origin to tip of snout

*Ctenopharyngodon idella*  
(Grass Carp)



3b. distance from anal fin origin to base of caudal fin going 2.5 times or less into distance from anal fin origin to tip of snout.....go to 5

# *Ctenopharyngodon idella* (Grass Carp)



4a. lateral line scales less than 39

5a. belly behind pelvic fins with a fleshy keel

*Hypophthalmichthys molitrix* (Silver Carp)



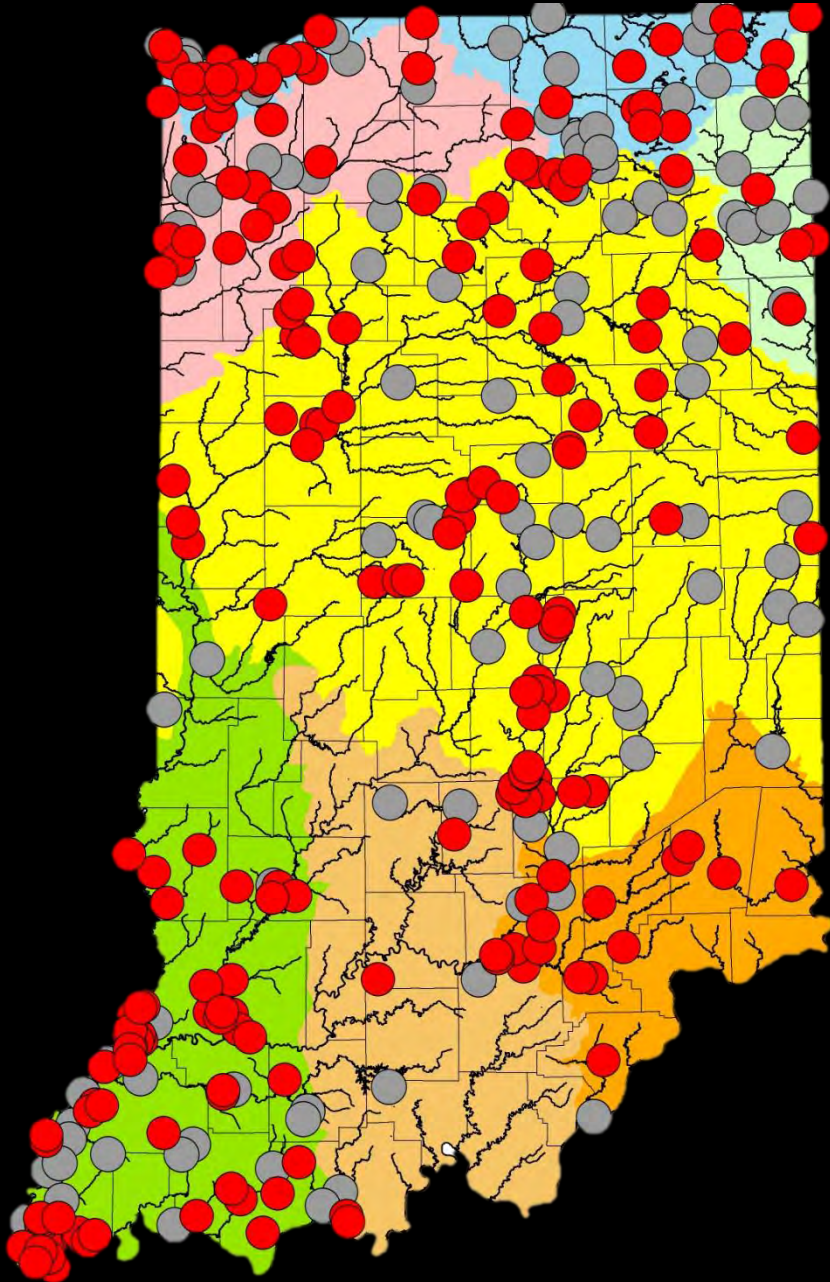
*Hypophthalmichthys nobilis* (Bighead Carp)

5b. belly behind pelvic fins without a fleshy keel.....go to 9



*Notemigonus crysoleucas*  
(Golden Shiner)

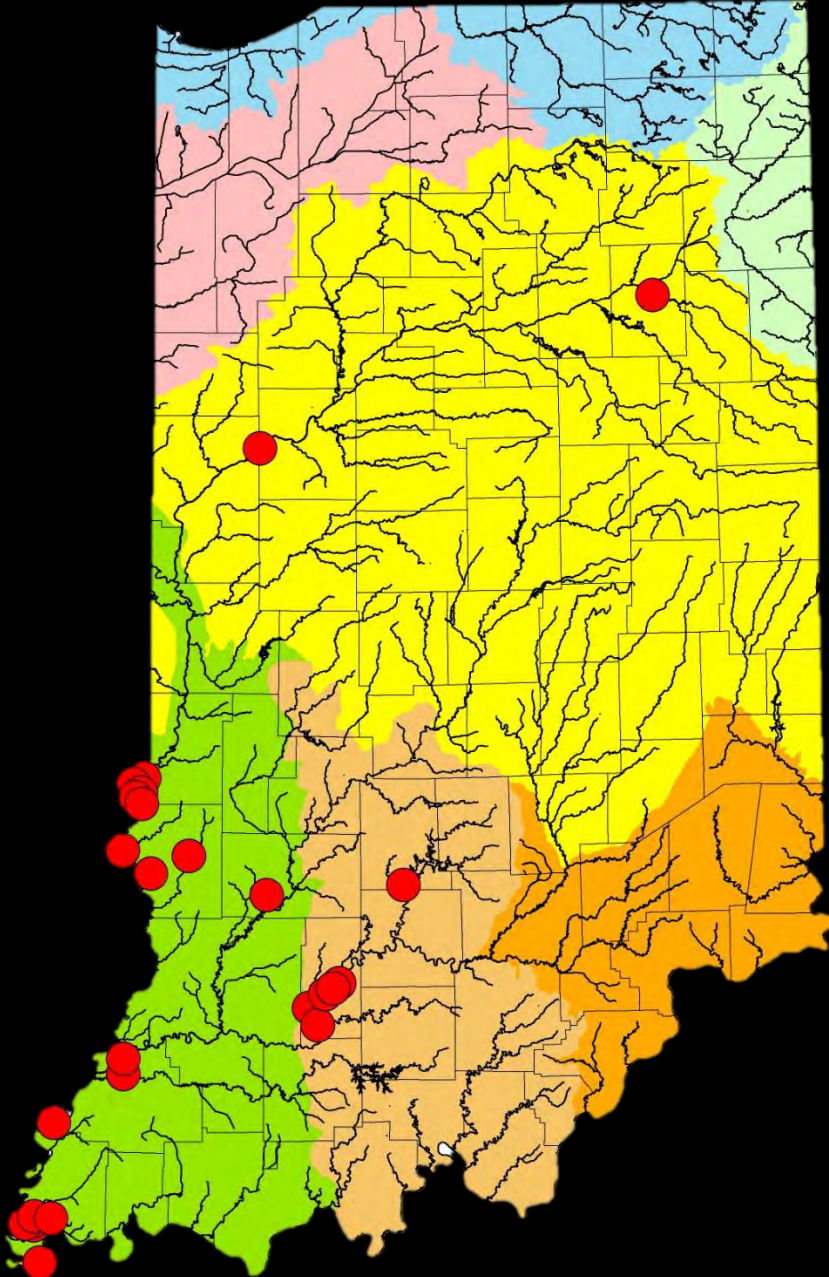
# *Notemigonus crysoleucas* (Golden Shiner)



6a. eyes located about midway between top and bottom margins of head

7a. keel on belly behind pelvic fins not crossed by scales

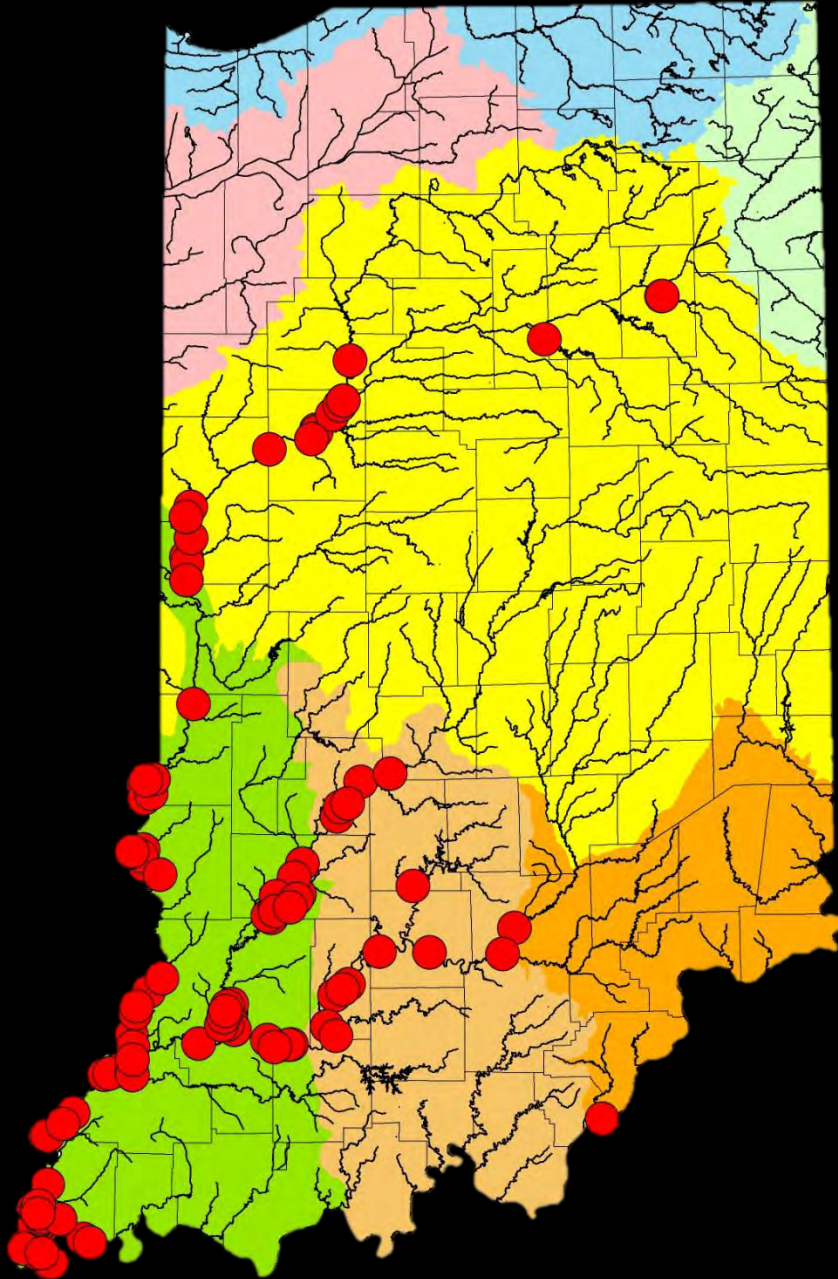
# *Hypophthalmichthys nobilis* (Bighead Carp)



6b. eyes located closer to bottom margin of head

8a. keel on belly extending from anus to origin of pelvic fins

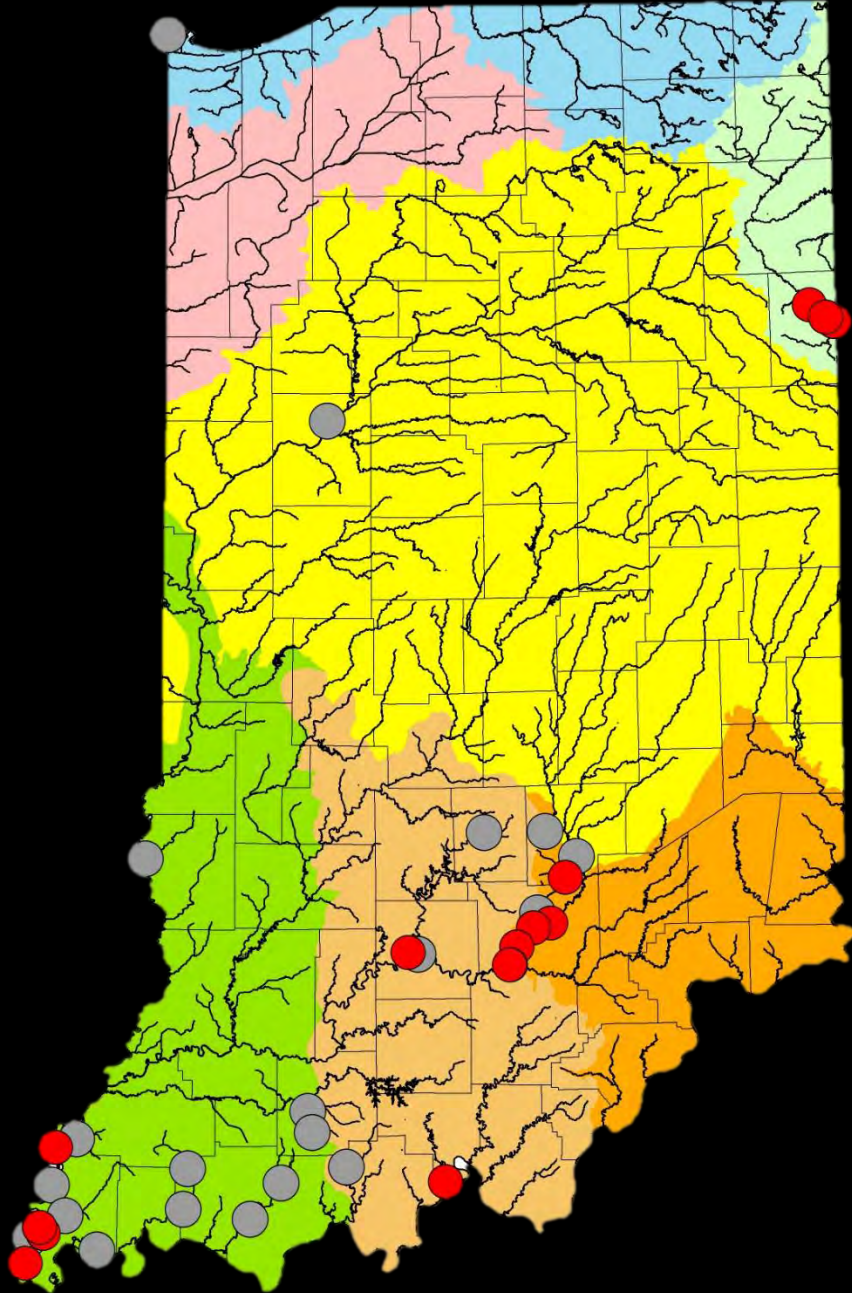
# *Hypophthalmichthys molitrix* (Silver Carp)



6b. eyes located closer to bottom margin of head

8b. keel on belly extending from anus to near origin of pectoral fins

# *Opsopoeodus emiliae* (Pugnose Minnow)



9a(5). dorsal fin rays 9; mouth very small and nearly vertical



**10a. small conical barbel at corner of mouth**



**10b. no barbel at corner of mouth.....go to 20**

- 11a. upper lip connected to snout by broad frenum  
12a. snout projecting beyond lower lip less than 1mm

*Rhinichthys atratulus* (Blacknose Dace)



11a. upper lip connected to snout by broad frenum

12b. snout projecting beyond lower lip less 1-3mm

*Rhinichthys cataractae* (Longnose Dace)



*Rhinichthys cataractae* (Longnose Dace)



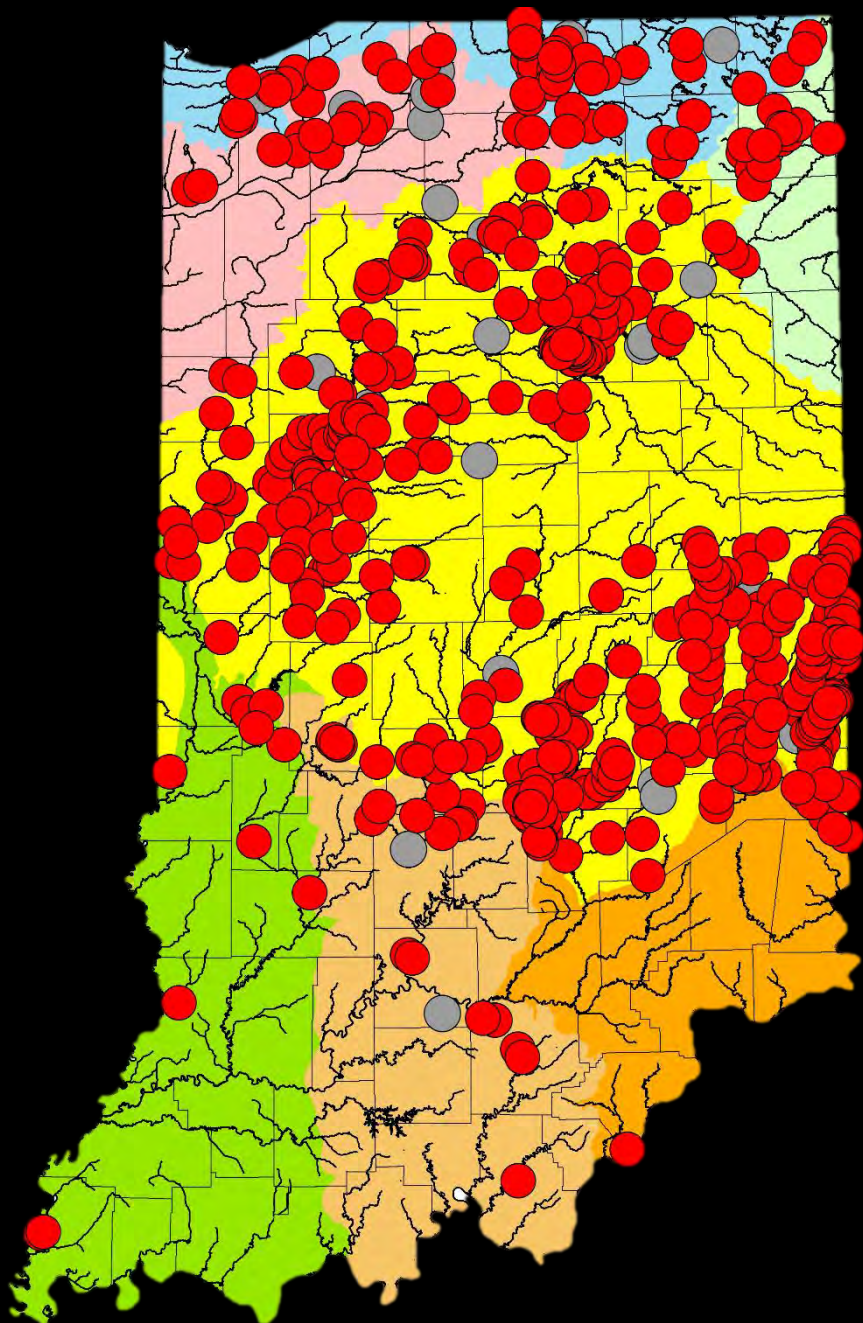
***Rhinichthys cataractae***  
**(Longnose Dace)**



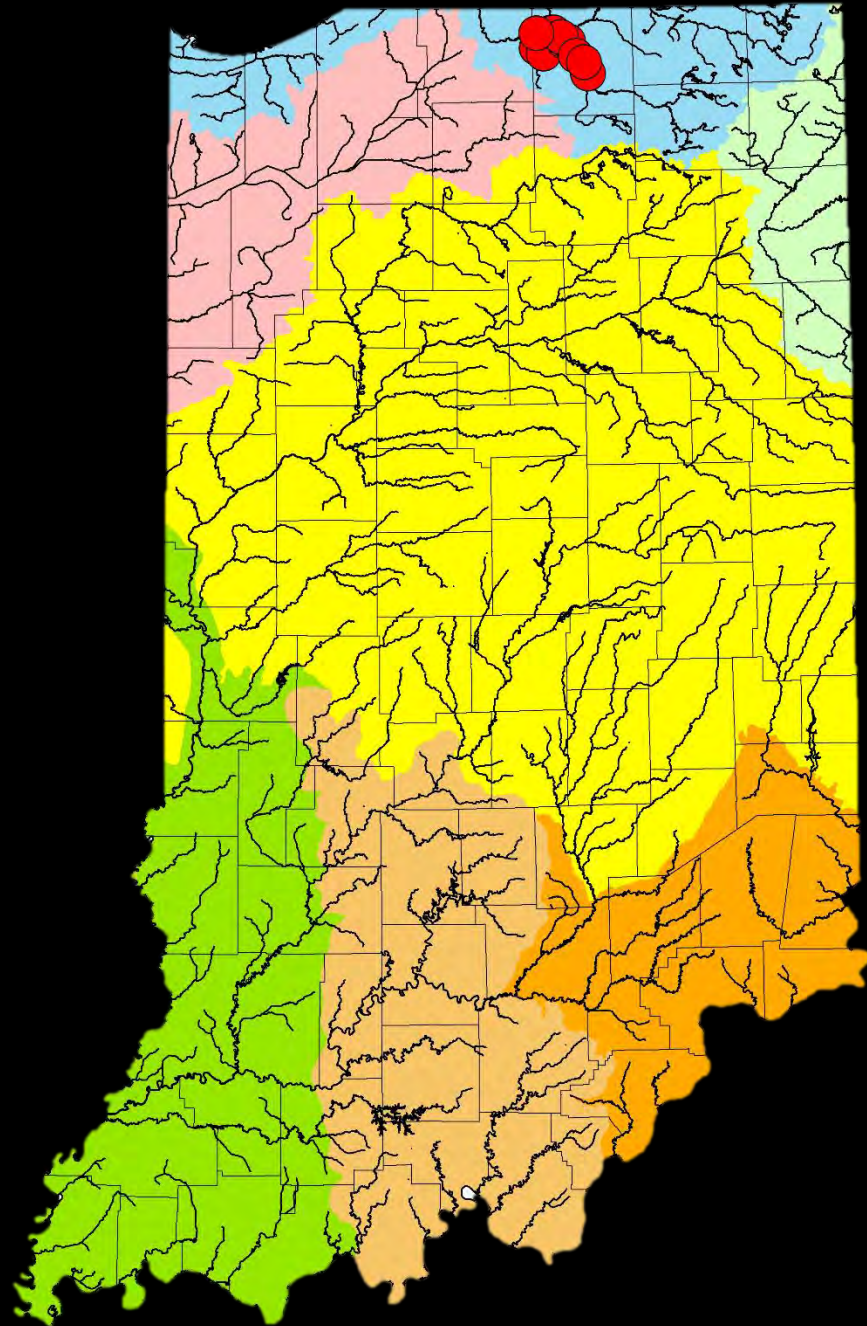
***Rhinichthys atratulus***  
**(Blacknose Dace)**



*Rhinichthys atratulus* (Blacknose Dace)



*Rhinichthys cataractae* (Longnose Dace)



13a. distance from nostril to front of dorsal fin nearly equal to distance from front of dorsal fin to base of caudal fin

15a. spot at base of caudal fin large and prominent

*Nocomis biguttatus* (Hornyhead Chub)



- 13a. distance from nostril to front of dorsal fin nearly equal to distance from front of dorsal fin to base of caudal fin
- 15b. spot at base of caudal fin faint or absent

*Nocomis micropogon* (River Chub)





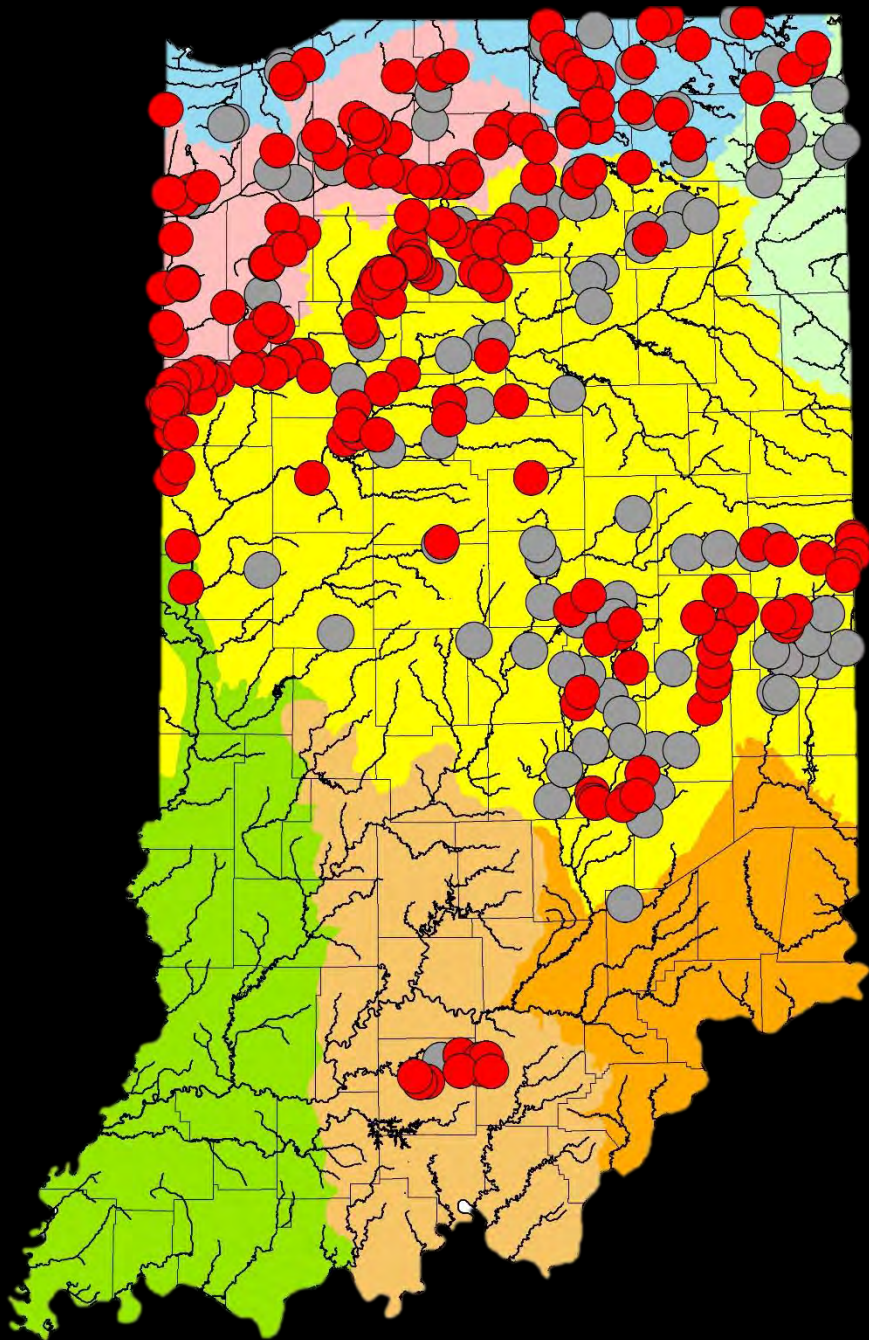


***Nocomis biguttatus* (Hornyhead Chub)**

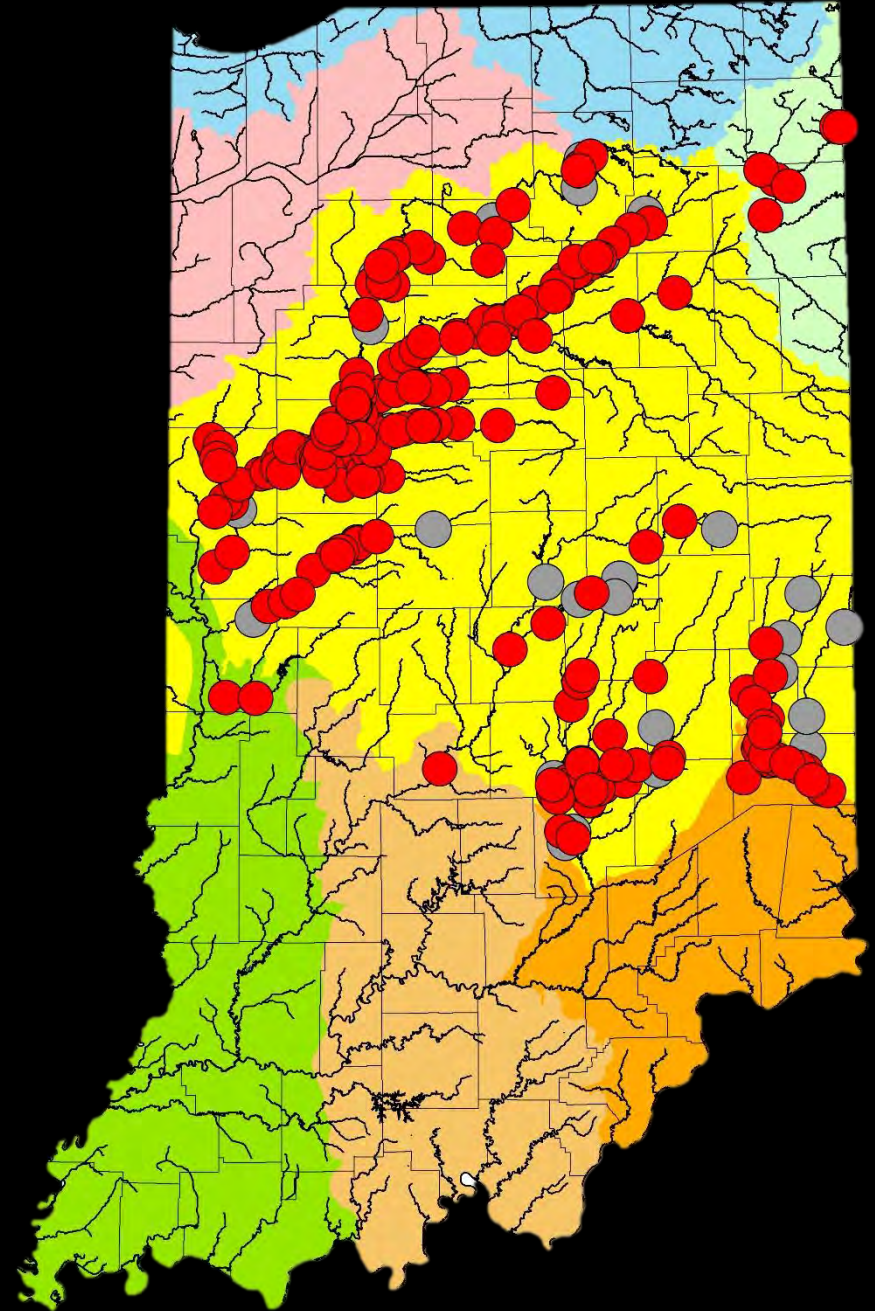


***Nocomis micropogon* (River Chub)**

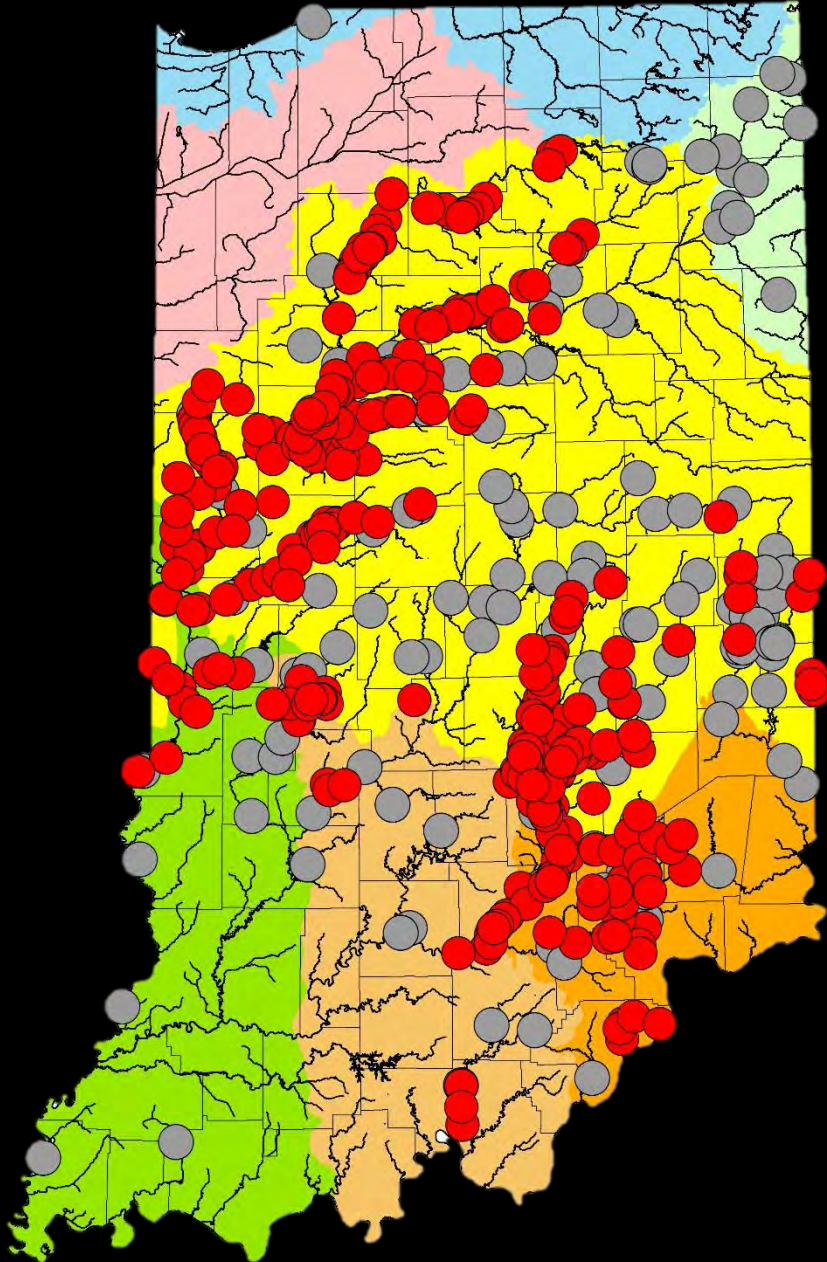
*Nocomis biguttatus* (Hornyhead Chub)



*Nocomis micropogon* (River Chub)

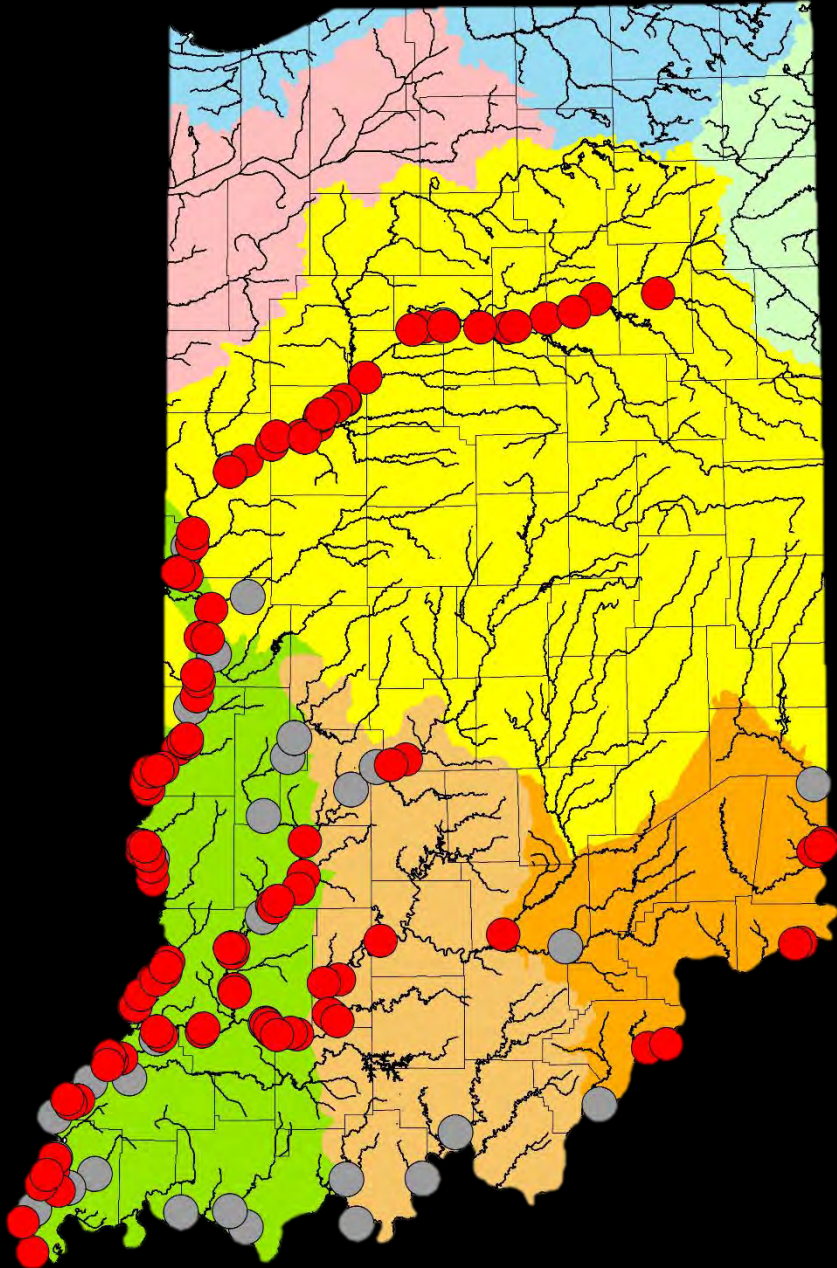


# *Hybopsis amblops* (Bigeye Chub)



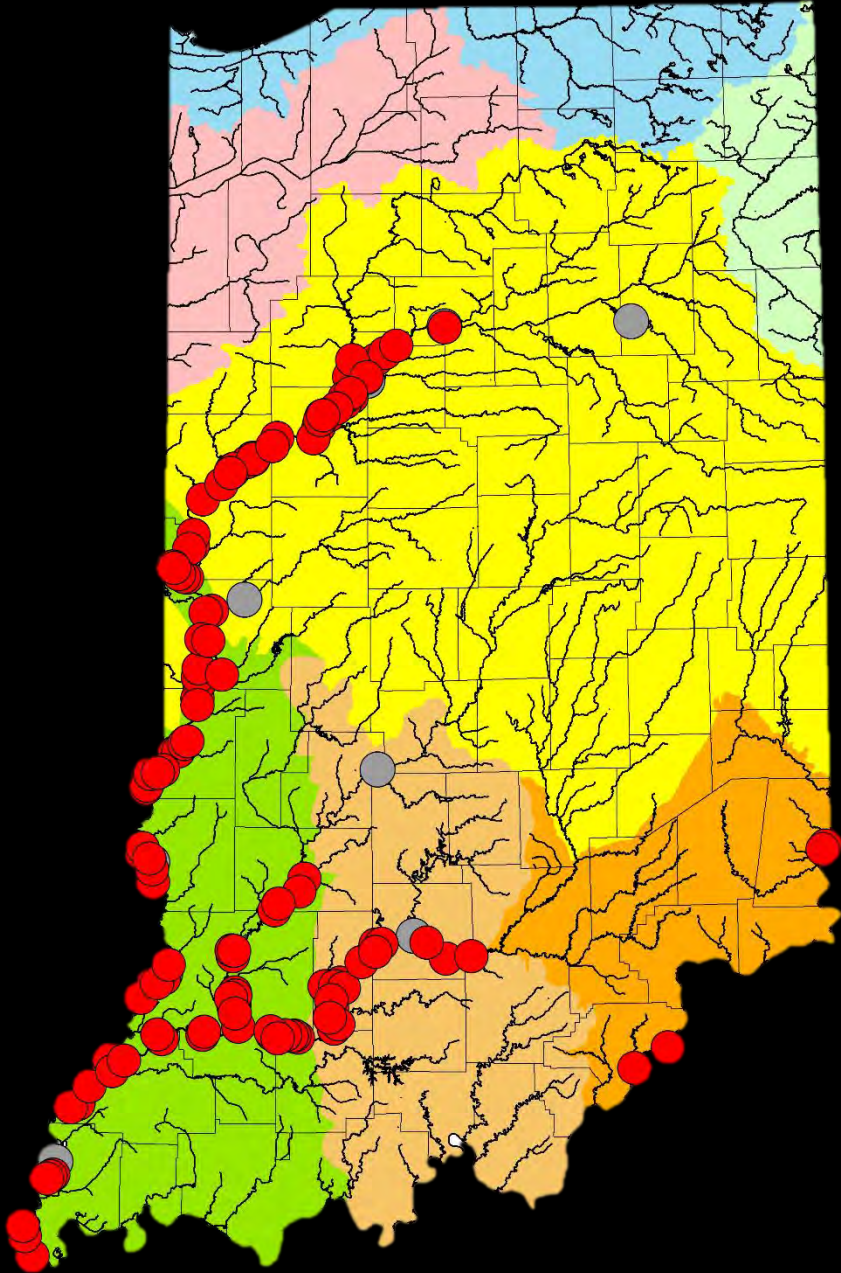
- 16a(13). side with continuous dark stripe from caudal fin base to tip of snout, or side uniformly colored
- 17a. stripe along midside dark and well-developed

# *Macrhybopsis storeriana* (Silver Chub)



- 16a(13). side with continuous dark stripe from caudal fin base to tip of snout, or side uniformly colored
- 17b. no stripe along midside

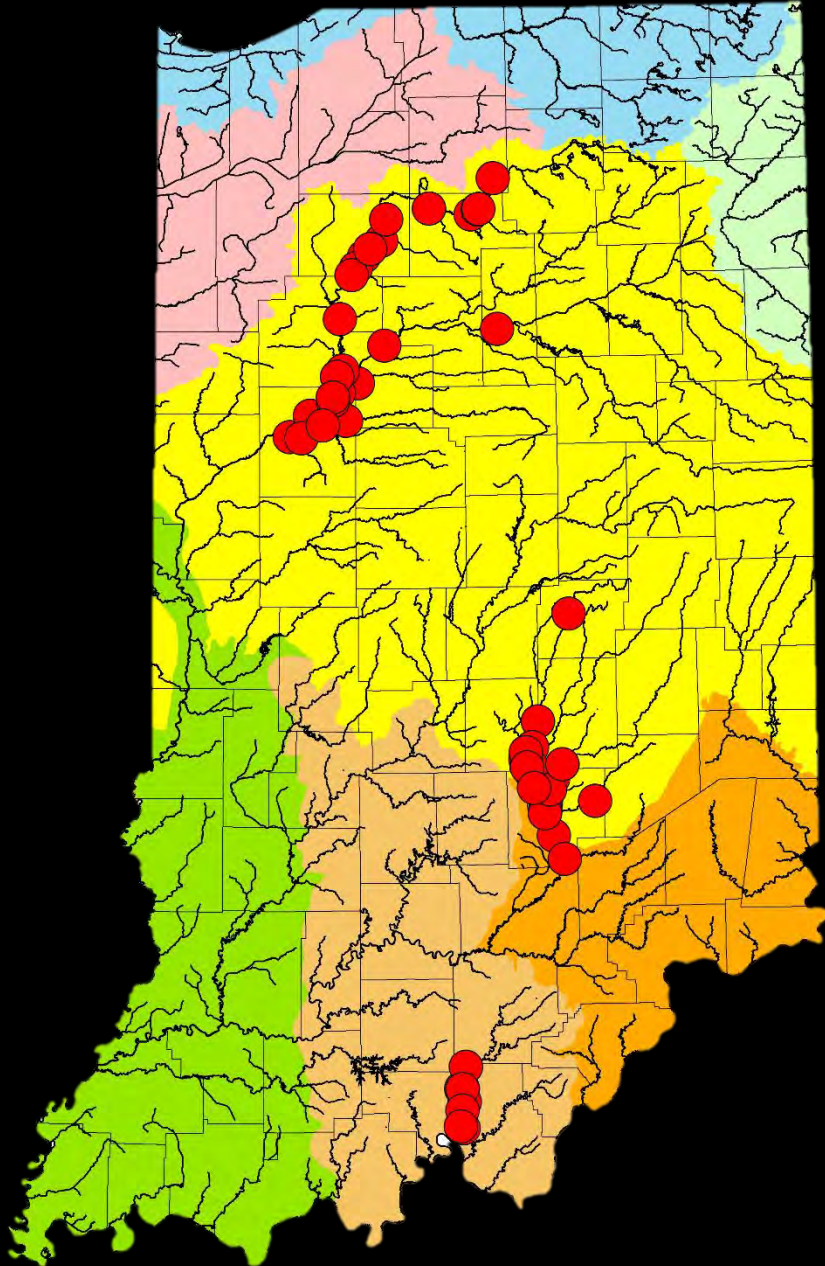
# *Macrhybopsis hyostoma* (Shoal Chub)



**16b(13).** side with a row of dark blotches,  
numerous dark x-shaped  
markings or speckles

**18a.** upper jaw extending past front of  
eye

# *Erimystax dissimilis* (Streamline Chub)

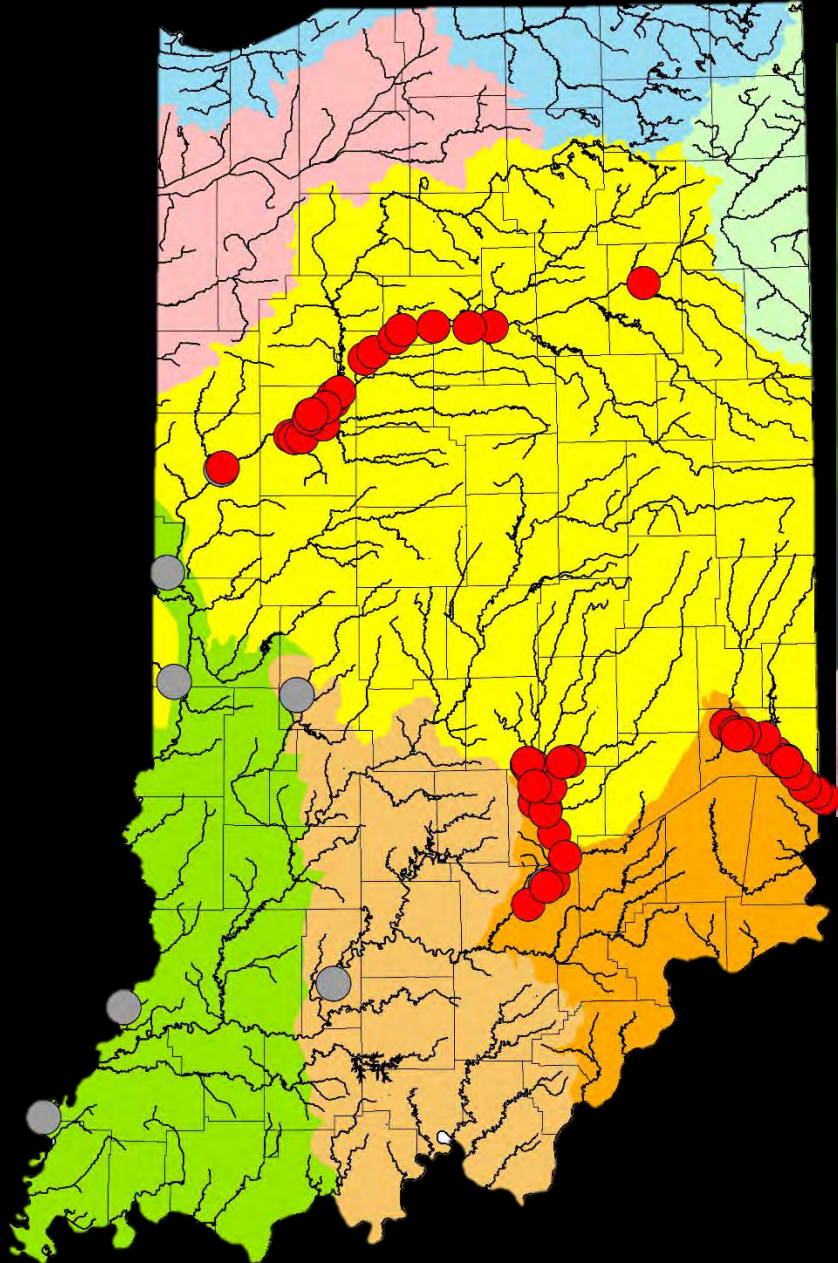


**16b(13).** side with a row of dark blotches,  
numerous dark x-shaped  
markings or speckles

**18b.** upper jaw not extending past front  
of eye

**19a.** midside with 7-11 oblong blotches

# *Erimystax x-punctatus* (Gravel Chub)



**16b(13).** side with a row of dark blotches,  
numerous dark x-shaped  
markings or speckles

**18b.** upper jaw not extending past front  
of eye

**19b.** midside without dark blotches

20a. stout, blunt-tipped, half-ray at front of dorsal fin, distinctly separated from first principal ray; pre-dorsal scales crowded and smaller than scales along sides

*Pimephales vigilax* (Bullhead Minnow)



*Pimephales notatus* (Bluntnose Minnow)



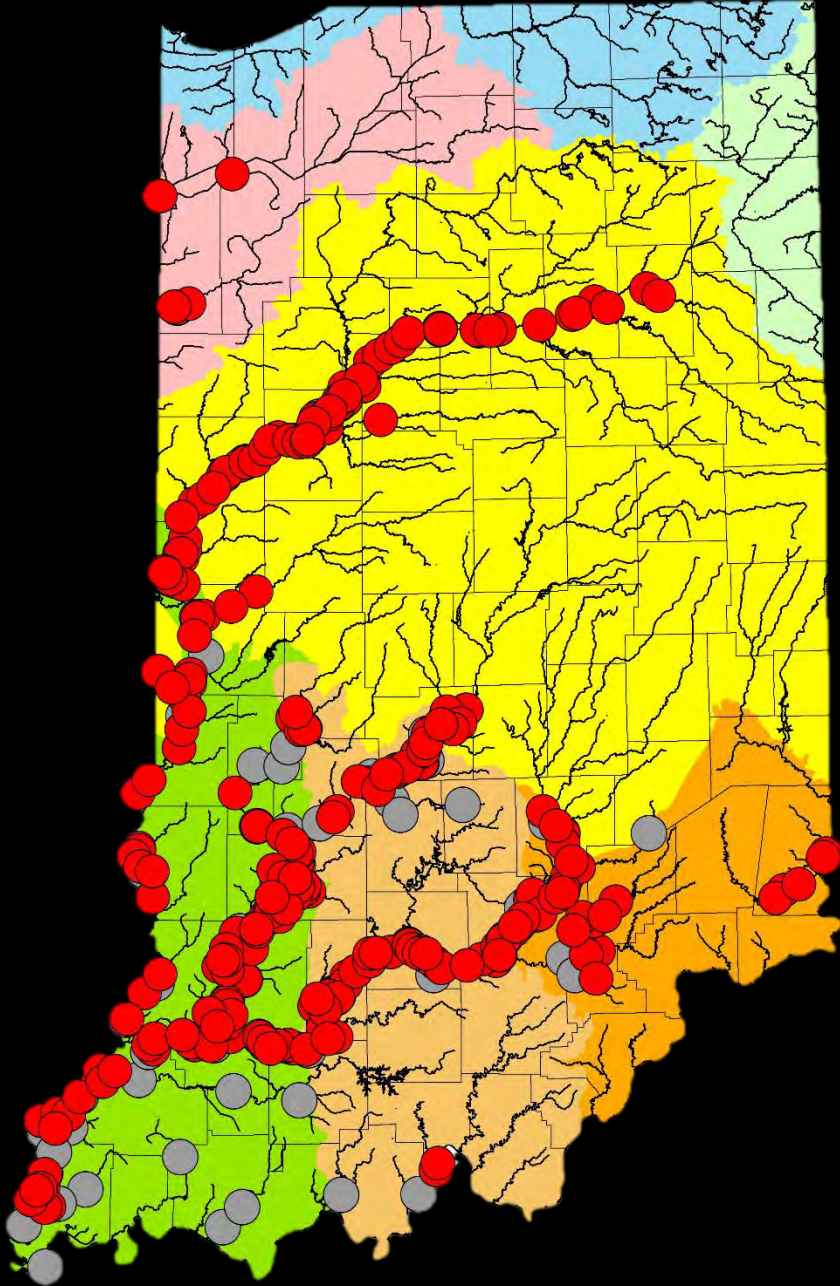
*Pimephales promelas* (Fathead Minnow)



20b. half-ray at front of dorsal fin slender and tightly bound to first principal ray; pre-dorsal scales not crowded or much smaller than scales along sides.....go to 23

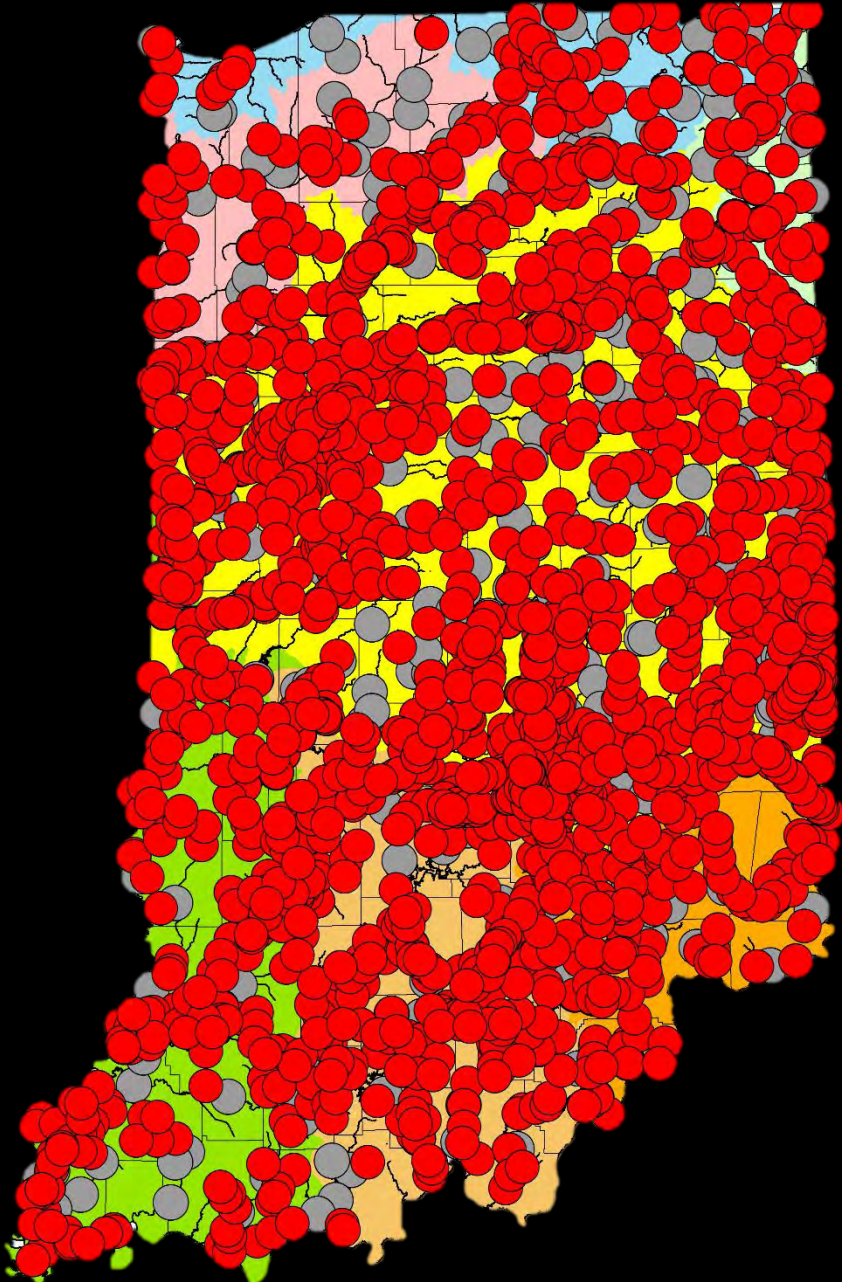


# *Pimephales vigilax* (Bullhead Minnow)



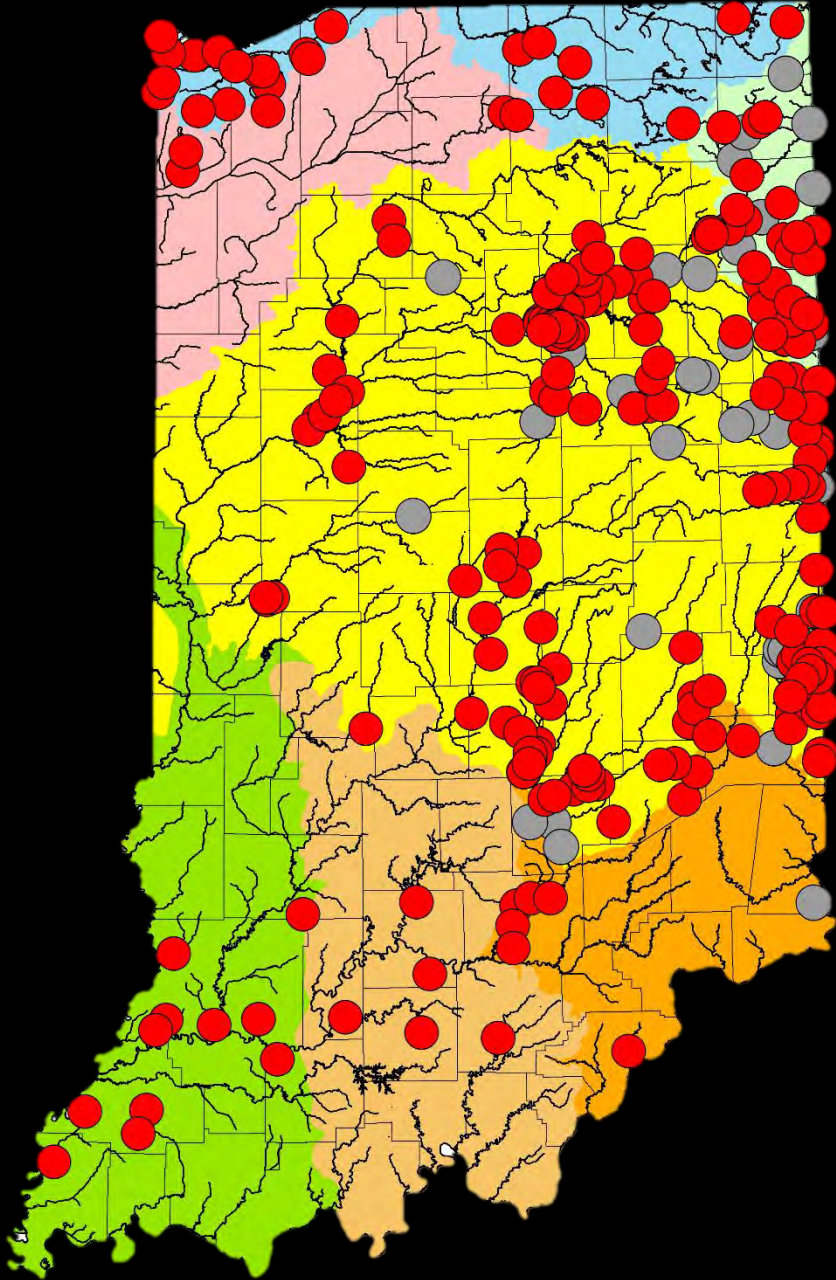
21a. lining of body cavity silvery

# *Pimephales notatus* (Bluntnose Minnow)



- 21b. lining of body cavity black
- 22a. mouth inferior and horizontal

# *Pimephales promelas* (Fathead Minnow)



21b. lining of body cavity black

22b. mouth terminal and oblique

**23a. lower jaw with a hard, shelf-like cartilaginous extension**

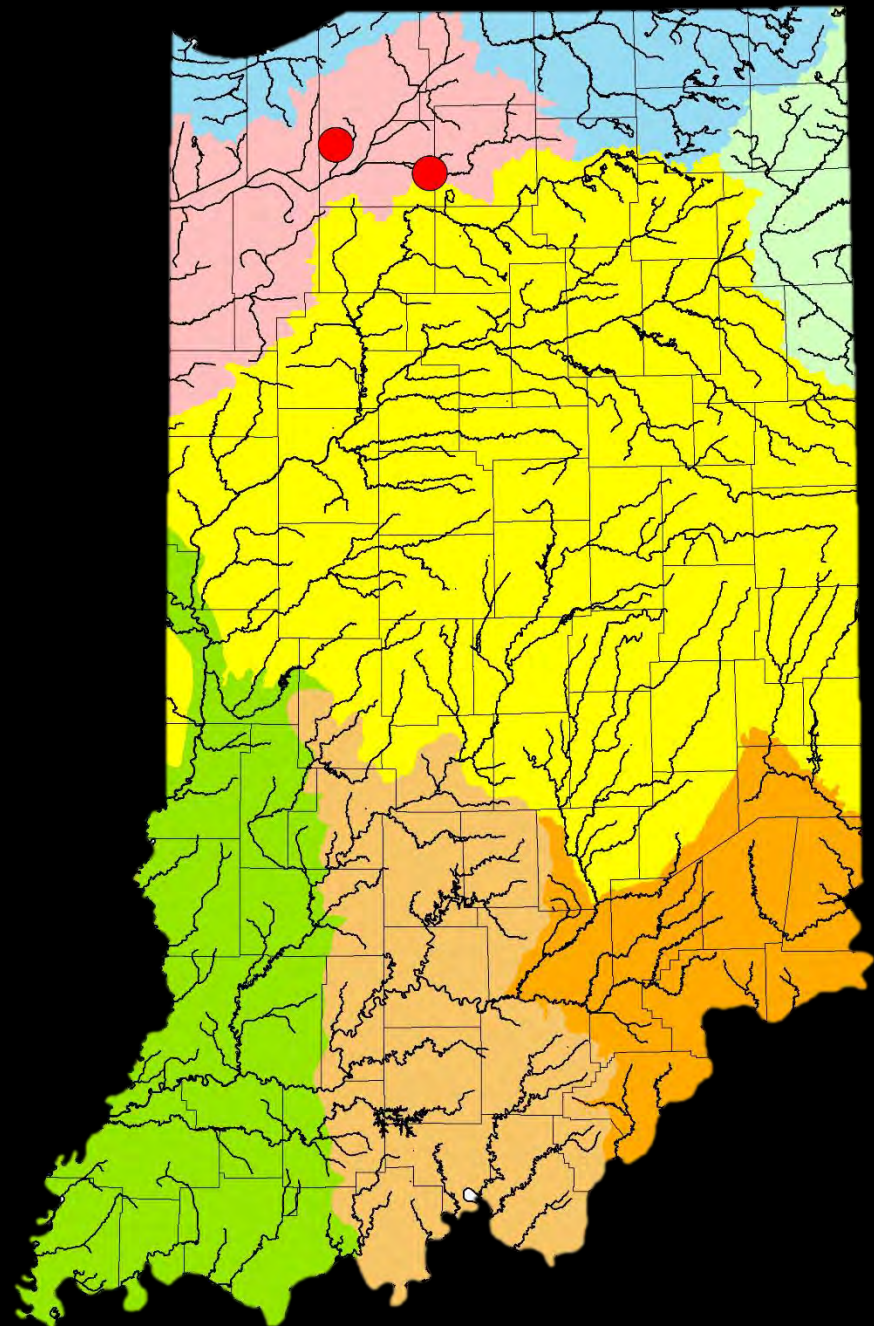
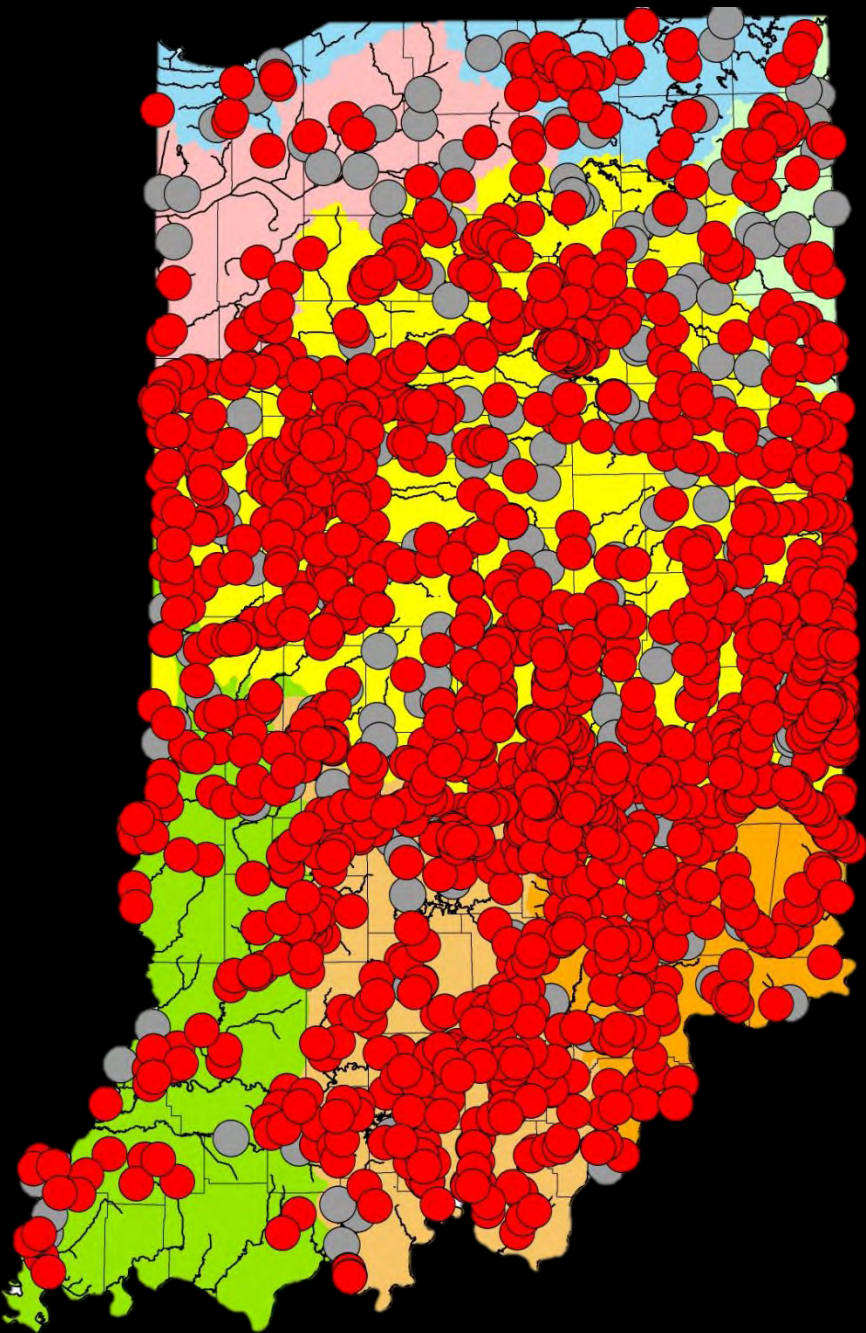


*Campostoma anomalum* (Central Stoneroller)



**23b. lower jaw without a hard, shelf-like cartilaginous extension.....go to 25**

*Campostoma anomalum* (Central Stoneroller)    *Campostoma oligolepis* (Largescale Stoneroller)

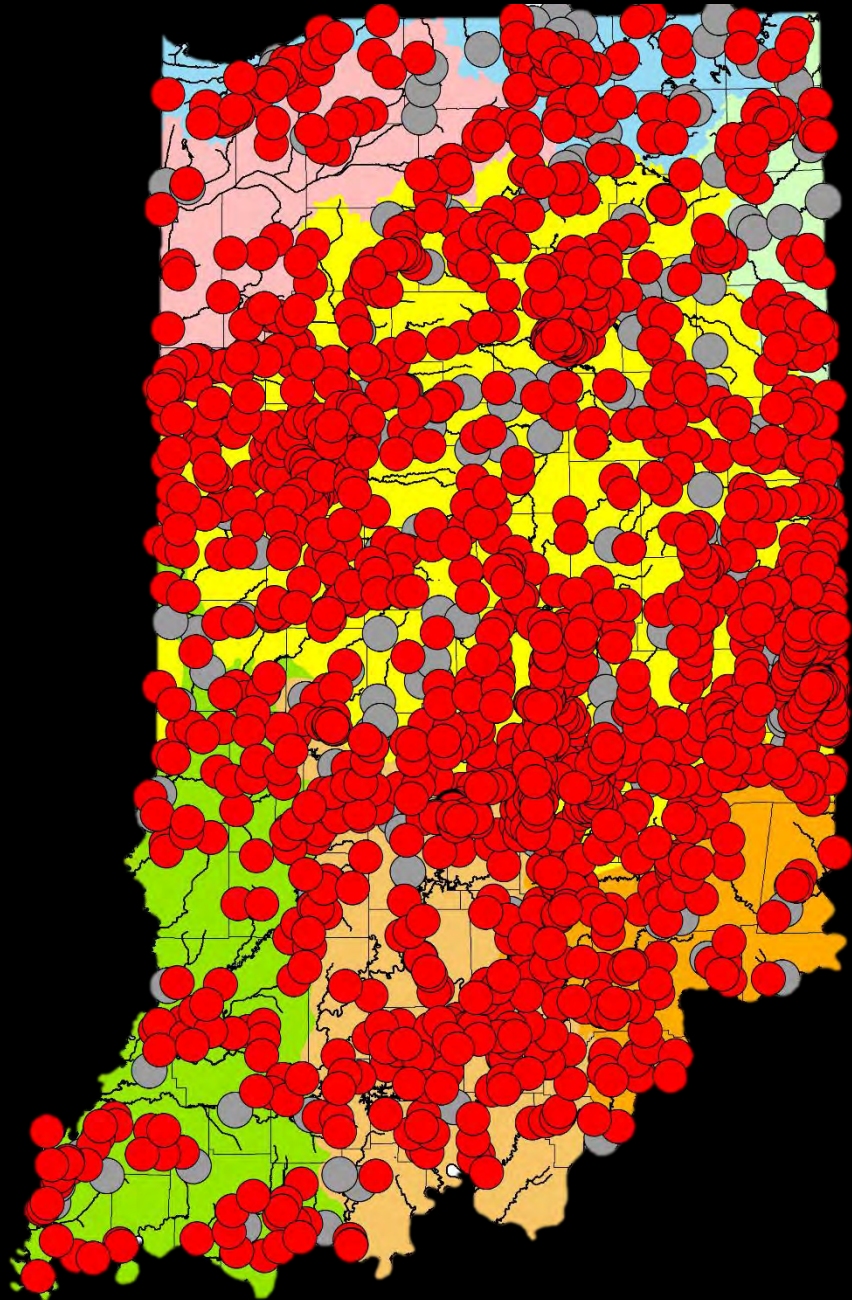


25a. lateral line scales > 50



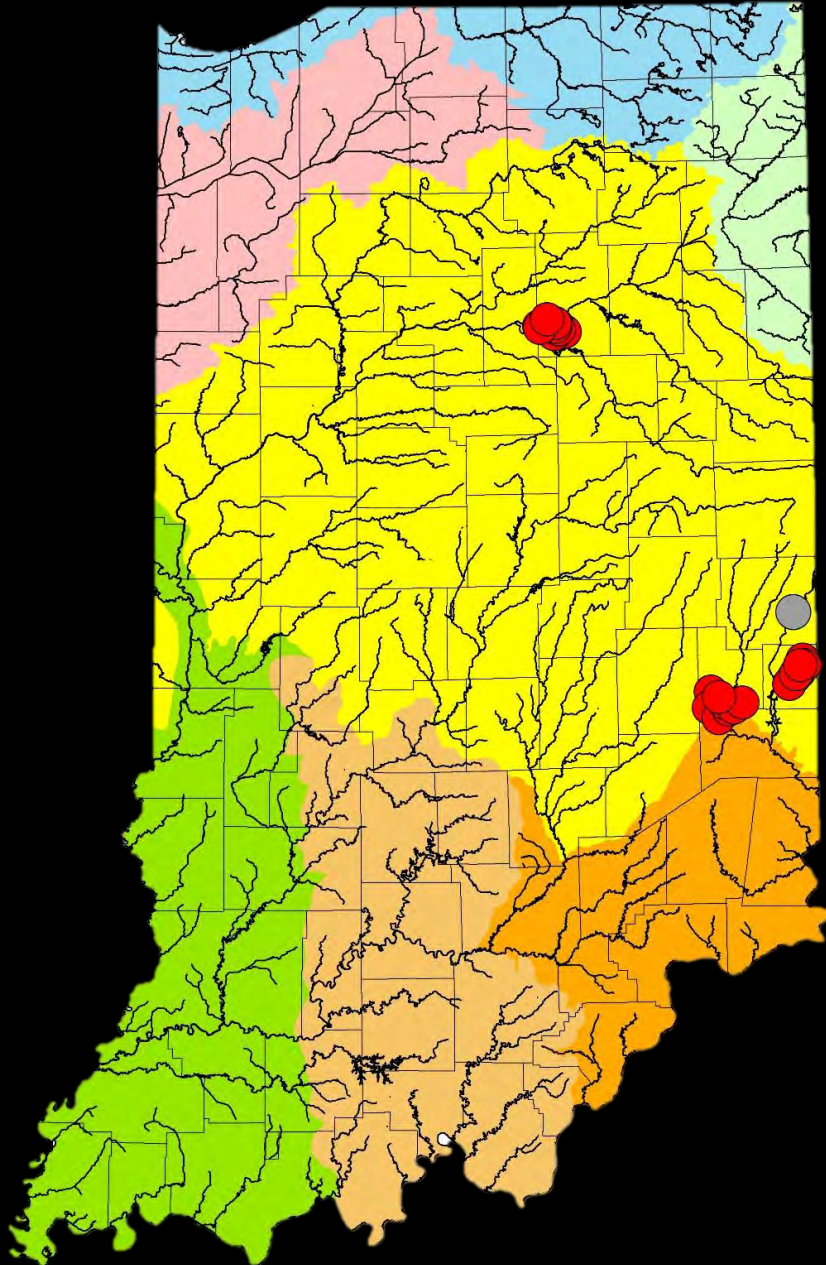
25b. lateral line scales < 50.....go to 28

# *Semotilus atromaculatus* (Creek Chub)



26a. small flap-like barbel in groove above upper lip

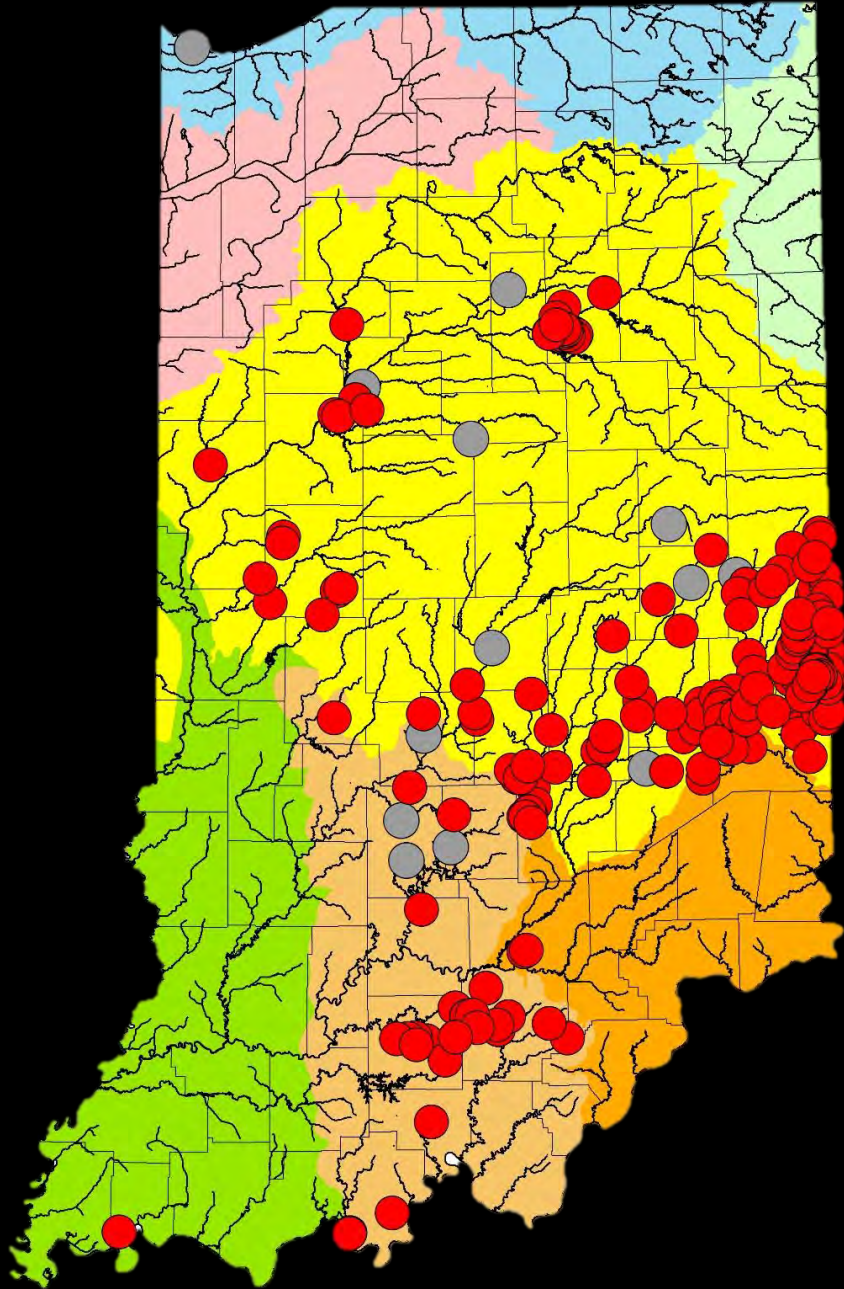
# *Clinostomus elongatus* (Redside Dace)



- 26b. no barbel in groove above upper lip
- 27a. lower jaw protruding beyond upper jaw

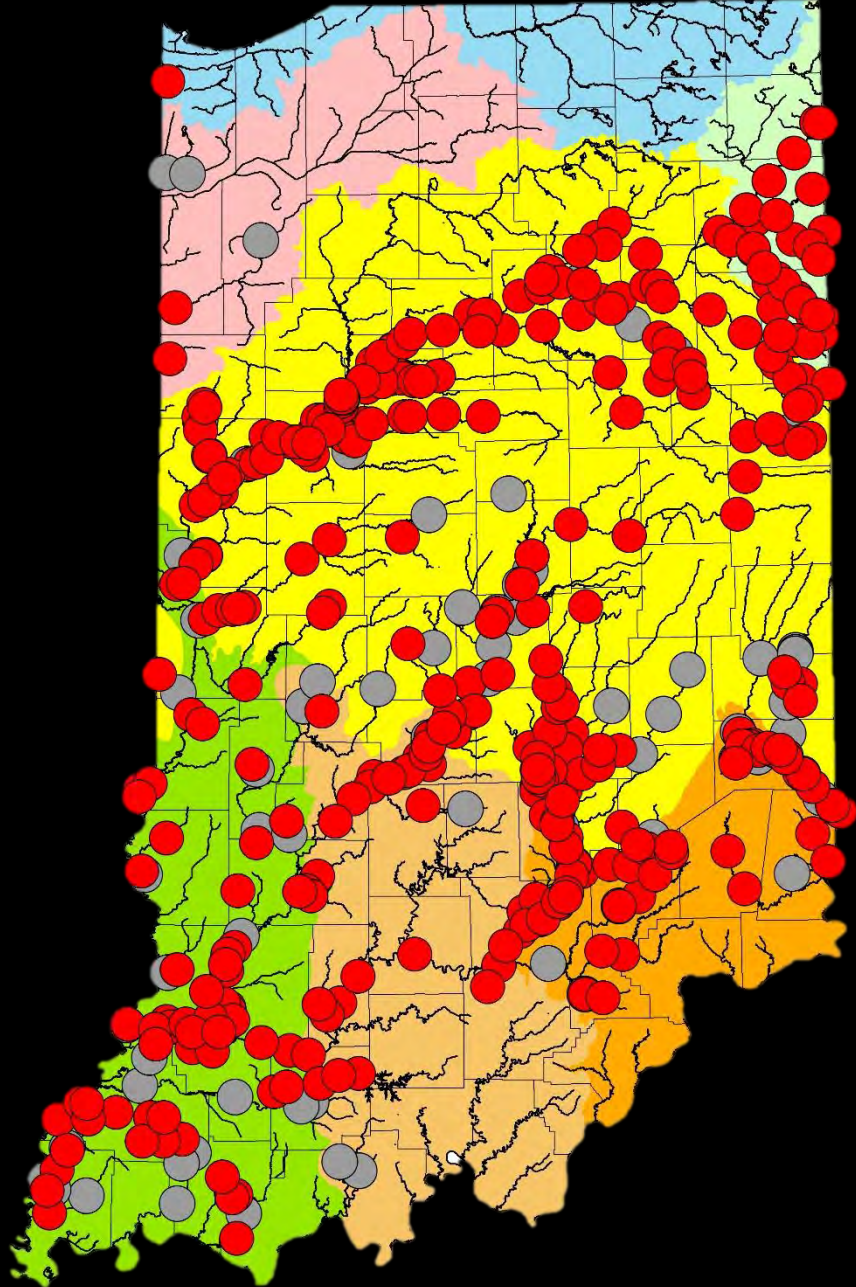


# *Chrosomus erythrogaster* (Southern Redbelly Dace)



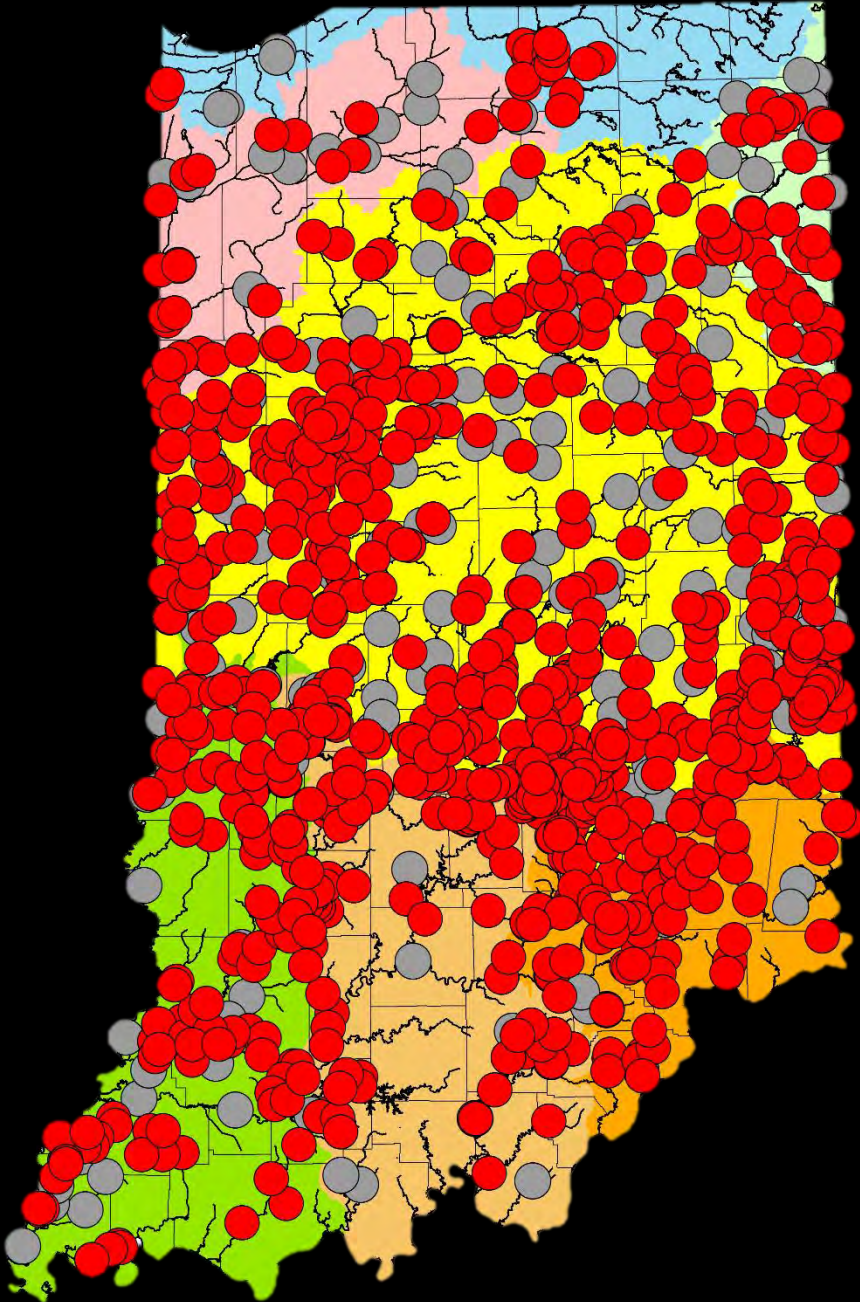
- 26b. no barbel in groove above upper lip
- 27b. lower jaw not protruding beyond upper jaw

# *Phenacobius mirabilis* (Suckermouth Minnow)



28a(25). mouth suckerlike; lower lip with a prominent lobe on either side

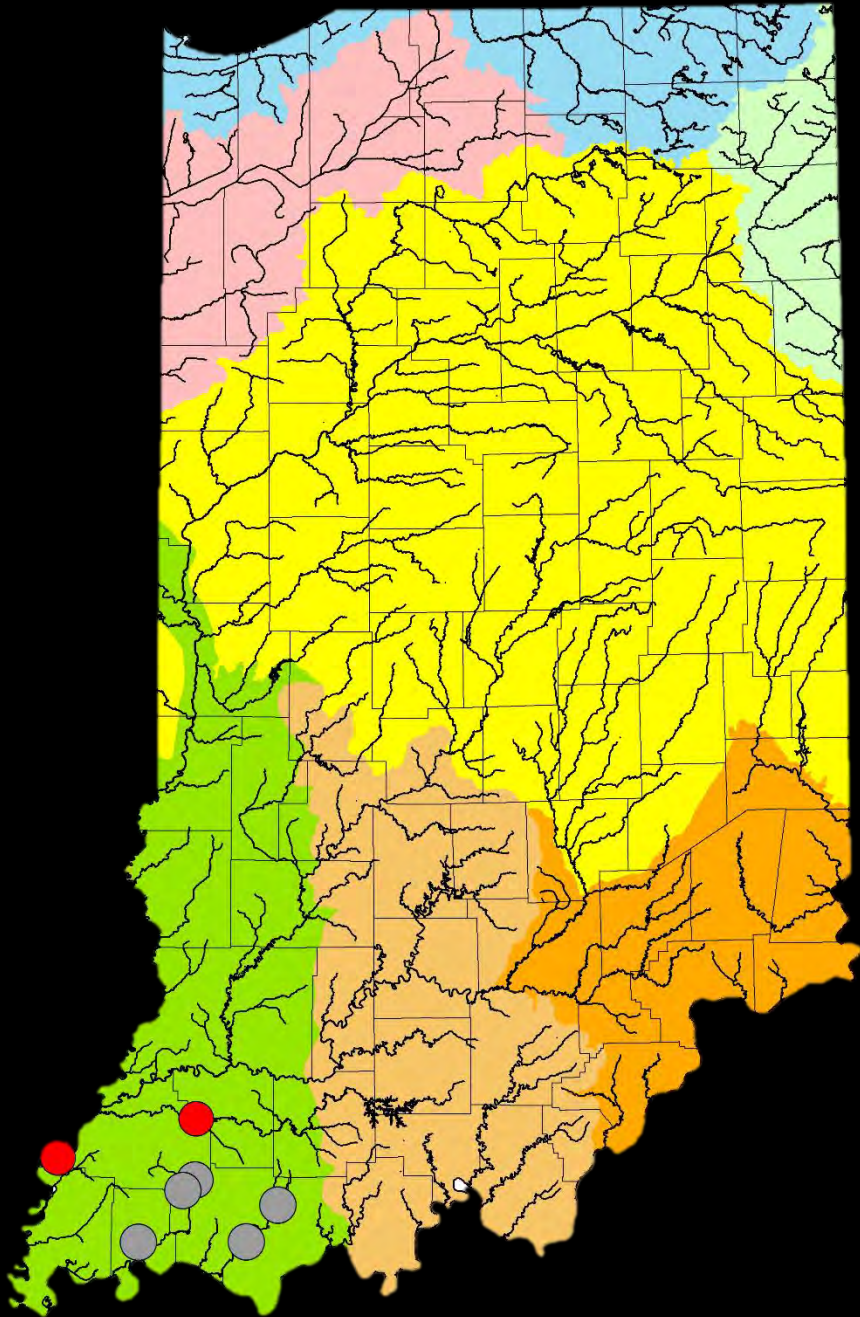
# *Notropis buccatus* (Silverjaw Minnow)



28b(25). mouth not suckerlike; lower lip without a prominent lobe on either side

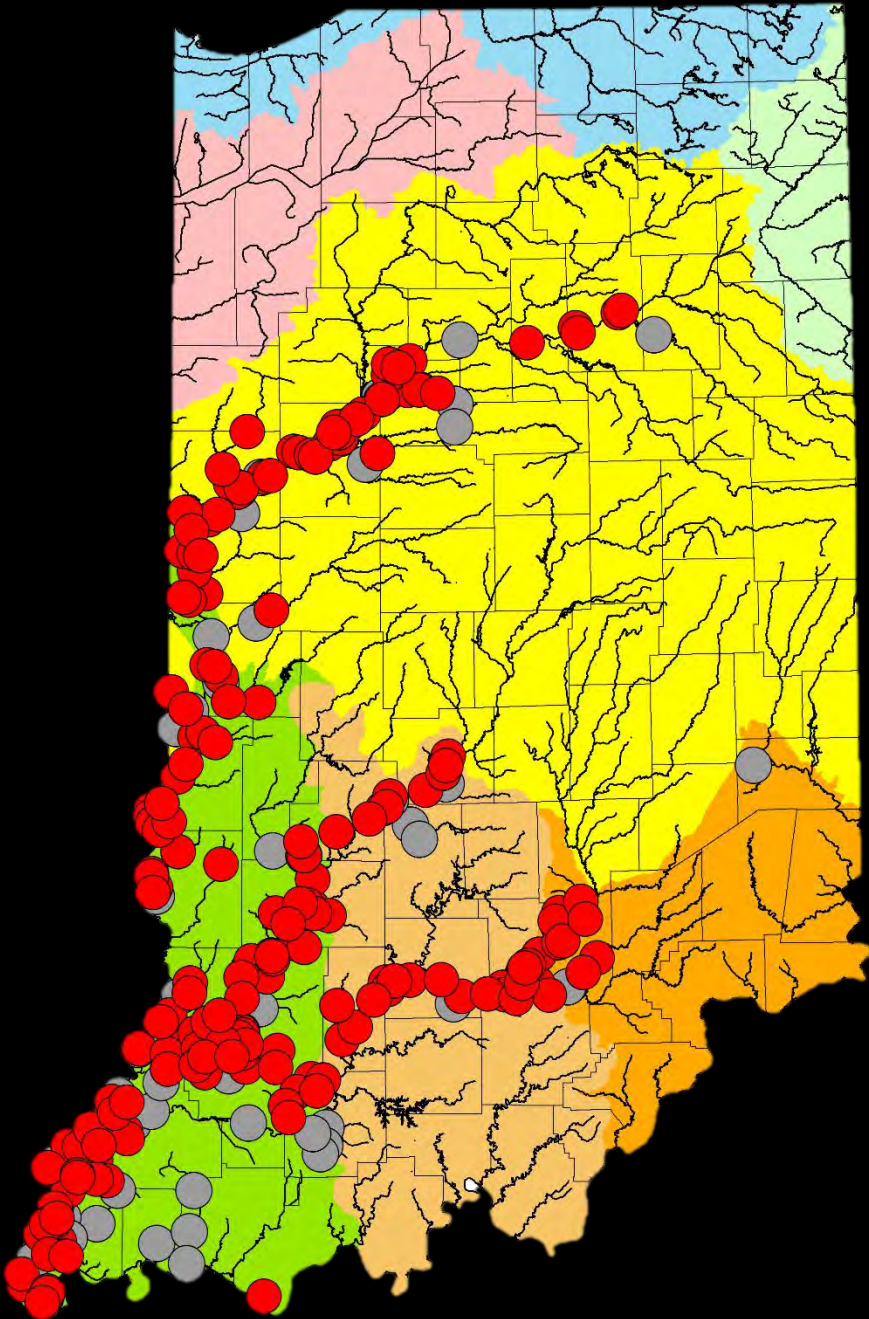
29a. undersurface of head distinctly flattened; honeycomb-like, cavernous spaces along cheeks

# *Hybognathus hayi* (Cypress Minnow)



- 30a. intestine long, greater than twice standard length
- 31a. snout length less than or equal to eye diameter

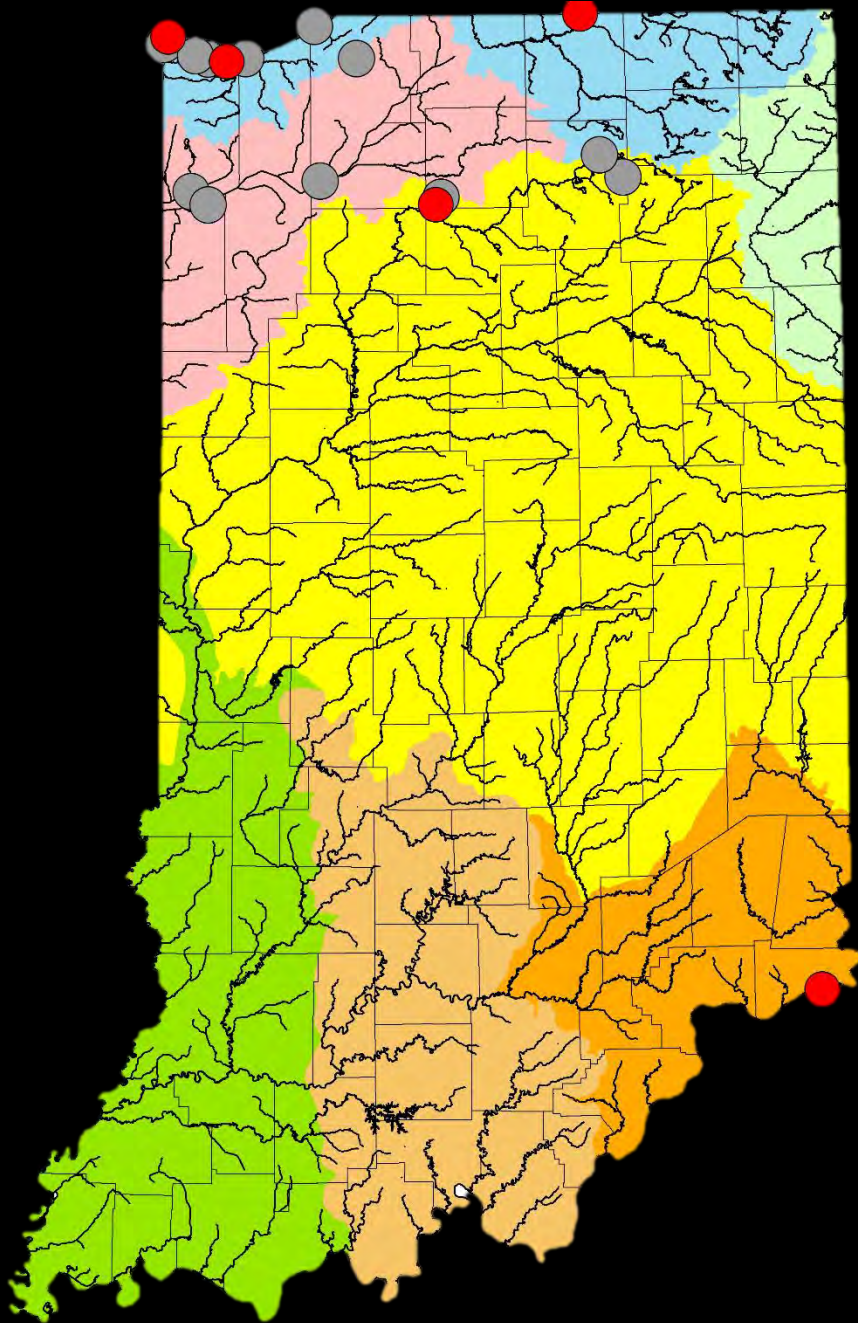
# *Hybognathus nuchalis* (Mississippi Silvery Minnow)



30a. intestine long, greater than twice standard length

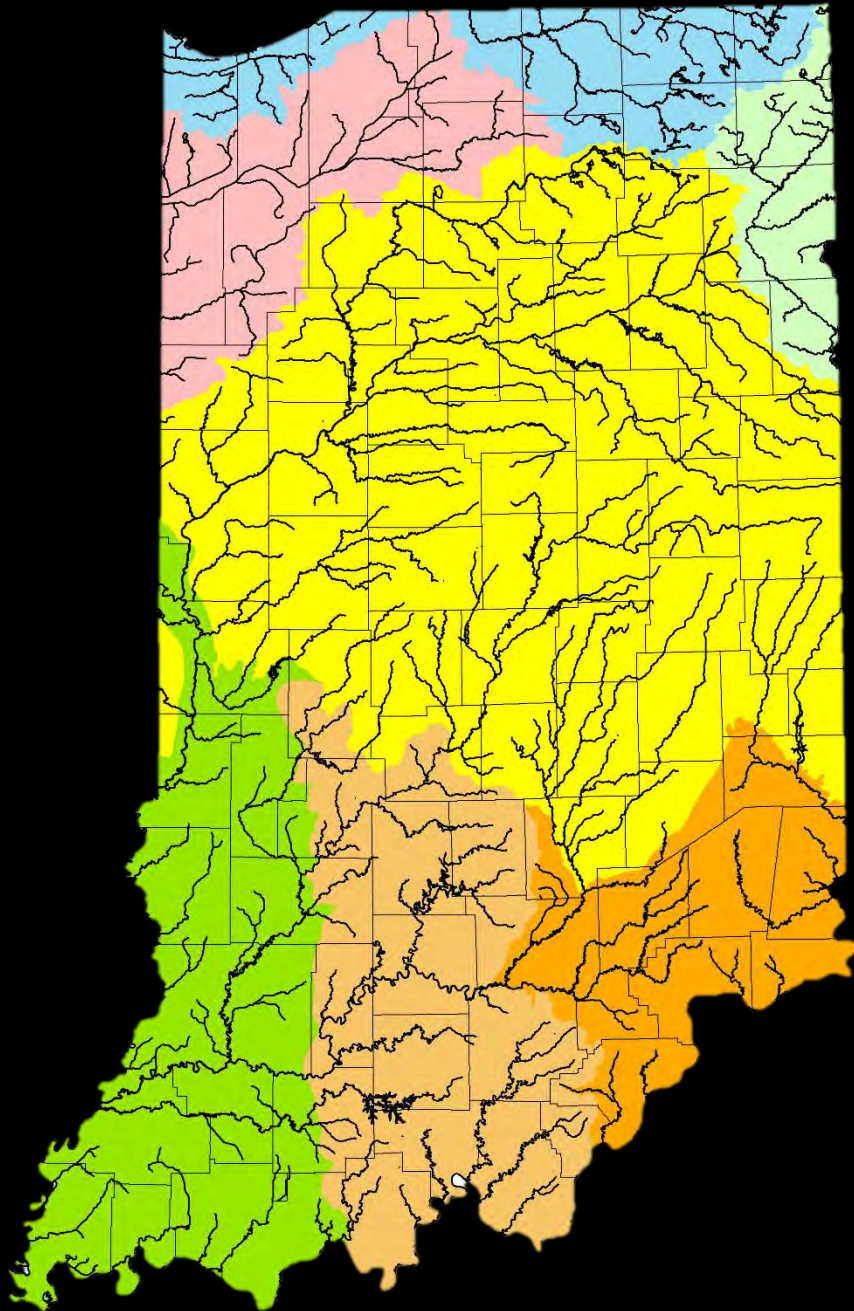
31b. snout length greater than eye diameter

# *Notropis hudsonius* (Spottail Shiner)



32a. base of caudal fin with prominent black spot

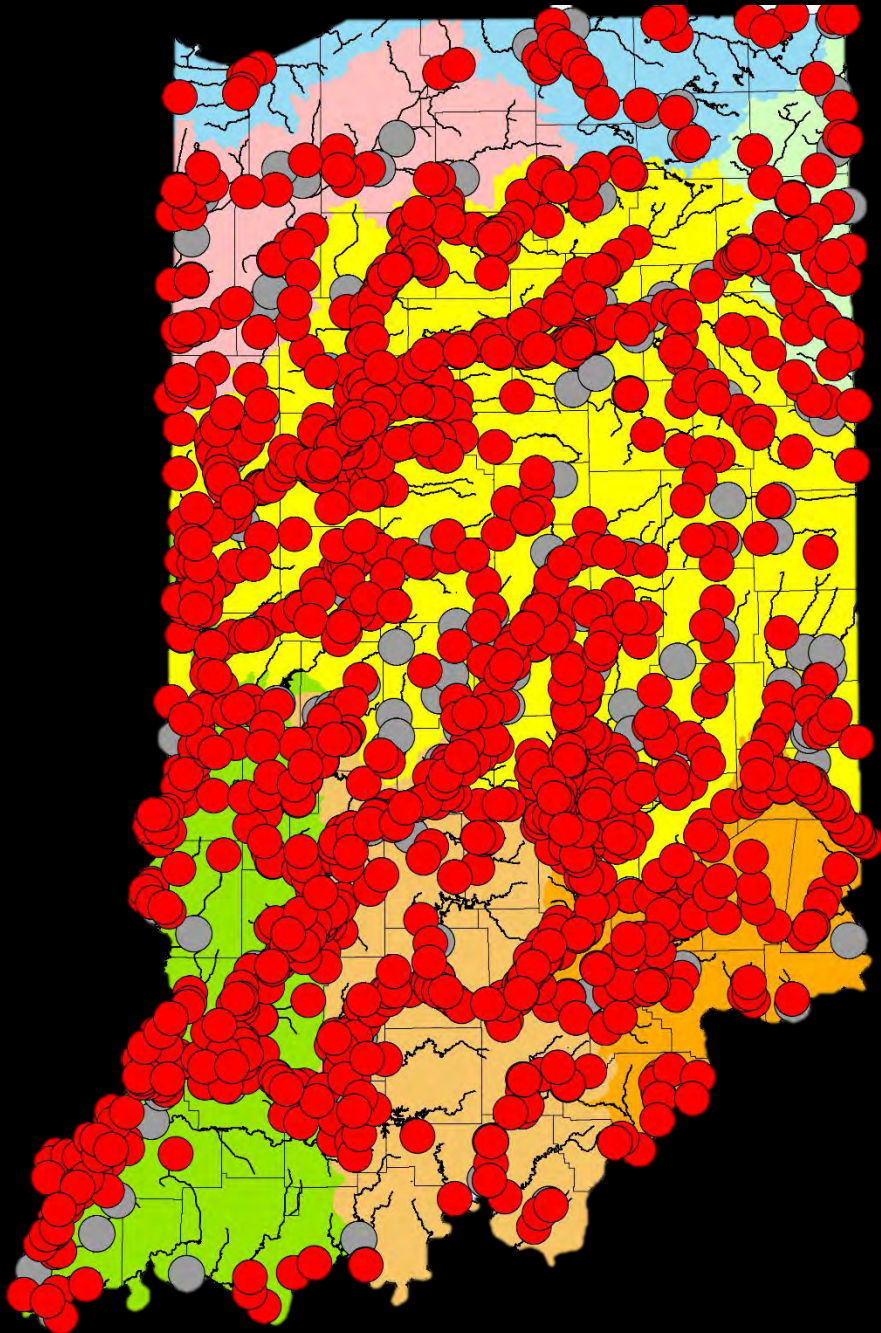
# *Cyprinella lutrensis* (Red Shiner)



**33a. all dorsal fin membranes with dark pigment or speckles, or pigment confined to posterior membranes of fin**

**34a. body depth usually going less than 3.5 times into standard length**

# *Cyprinella spiloptera* (Spotfin Shiner)



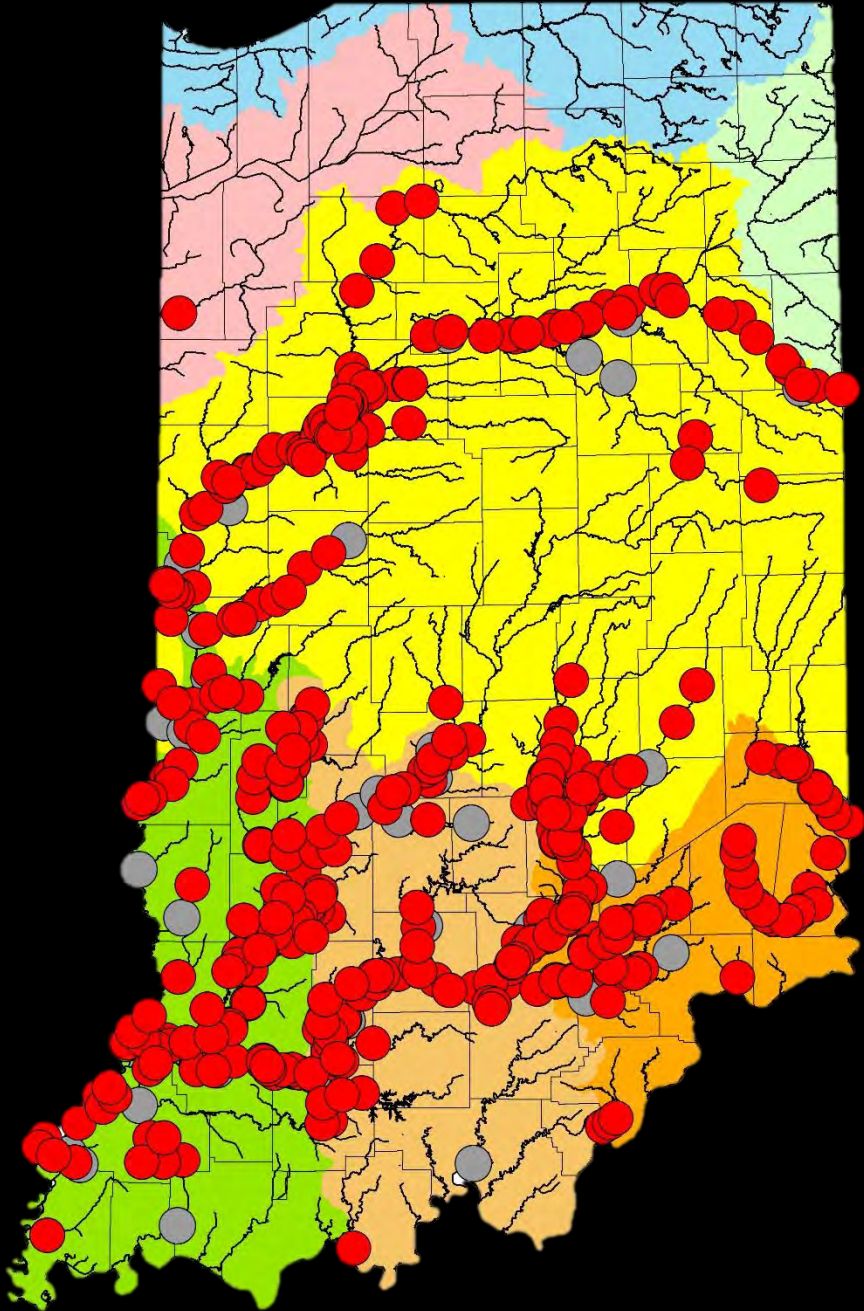
**33a. all dorsal fin membranes with dark pigment or speckles, or pigment confined to posterior membranes of fin**

**34b. body depth usually going more than 3.5 times into standard length**

**35a. anal fin rays 8**



# *Cyprinella whipplei* (Steelcolor Shiner)



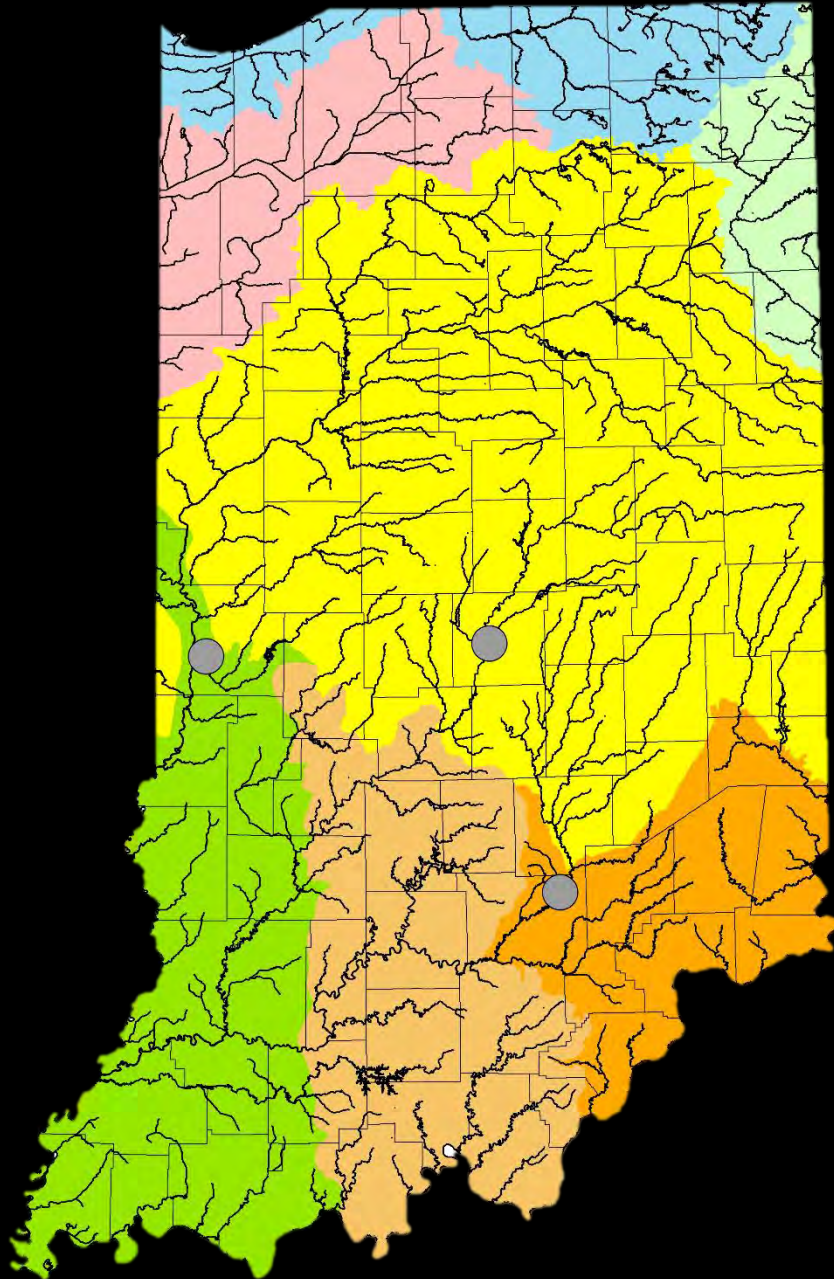
- 33a. all dorsal fin membranes with dark pigment or speckles, or pigment confined to posterior membranes of fin
- 34b. body depth usually going more than 3.5 times into standard length
- 35b. anal fin rays 9

36a(33). anal fin rays  $\geq 9$



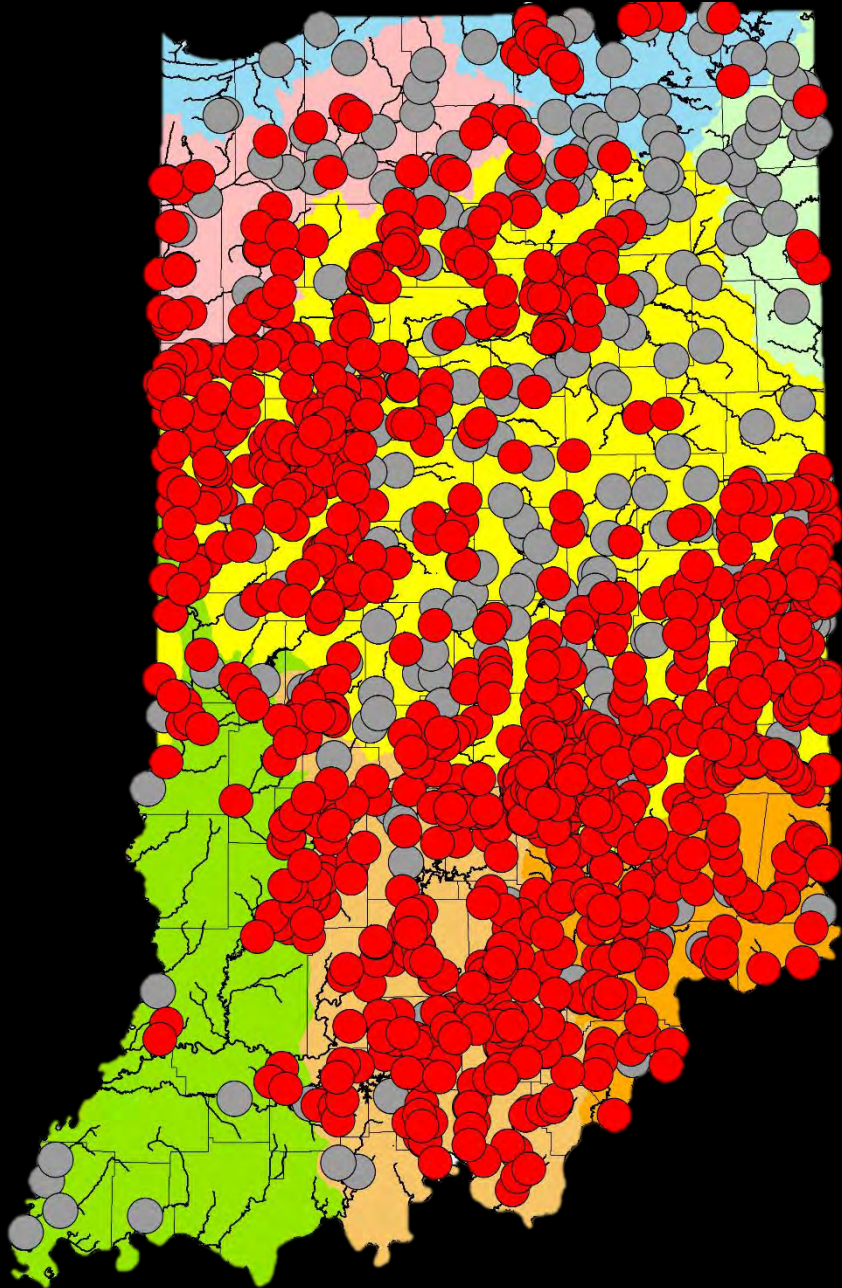
36b. anal fin rays  $< 9$ .....go to 46

# *Notropis ariommus* (Popeye Shiner)



- 37a. lining of body cavity black
- 38a. eye width more than 1.5 times snout length

# *Luxilus chrysocephalus* (Striped Shiner)

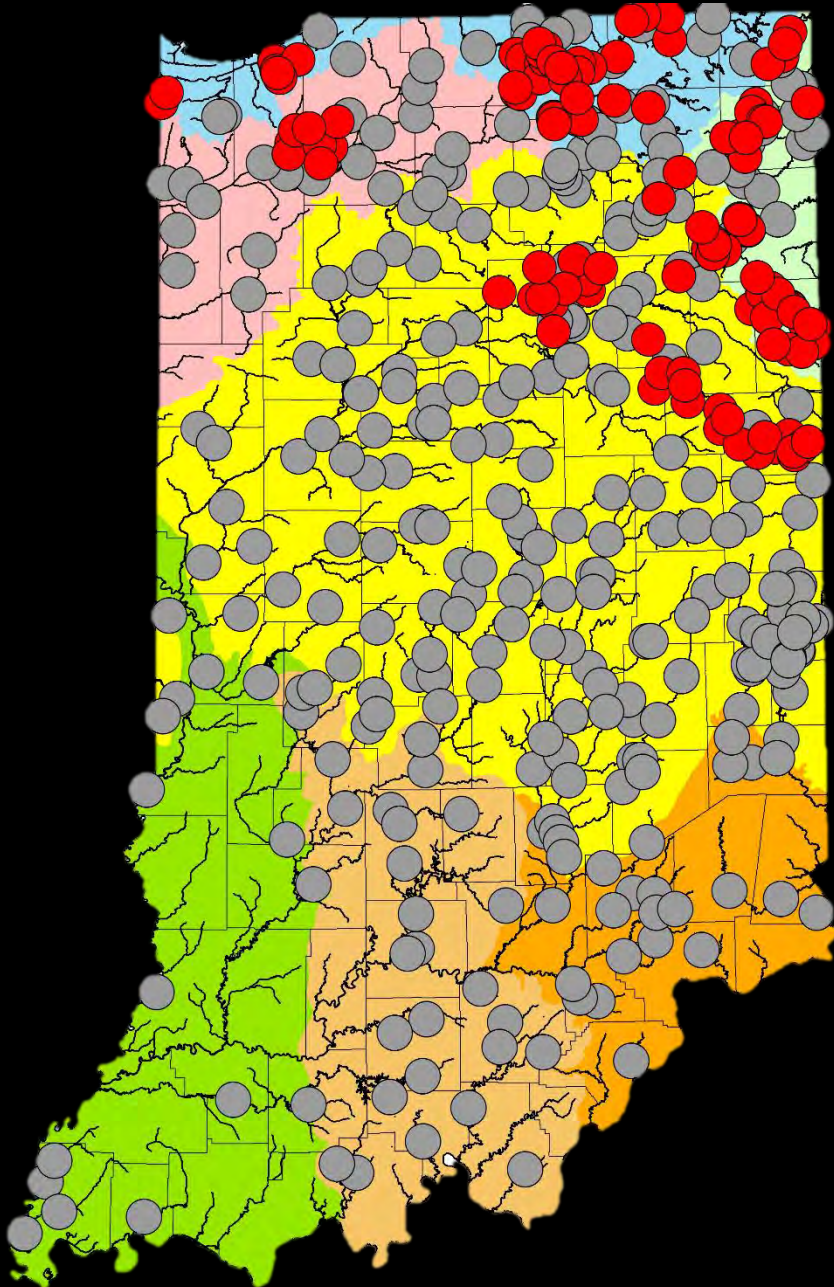


37a. lining of body cavity black

38b. eye width less than 1.5 times  
snout length

39a. Scales between head and dorsal fin  
origin less than or equal to 22

# *Luxilus cornutus* (Common Shiner)



**37a. lining of body cavity black**

**38b. eye width less than 1.5 times  
snout length**

**39b. scales between head and dorsal fin  
origin greater than or equal to 23**

**40a(37). scales between head and dorsal fin origin small and crowded**

**41a. no distinct spot at base of anterior dorsal rays and membranes**

*Lythrurus fumeus* (Ribbon Shiner)



**41b. distinct spot at base of anterior dorsal rays and membranes**

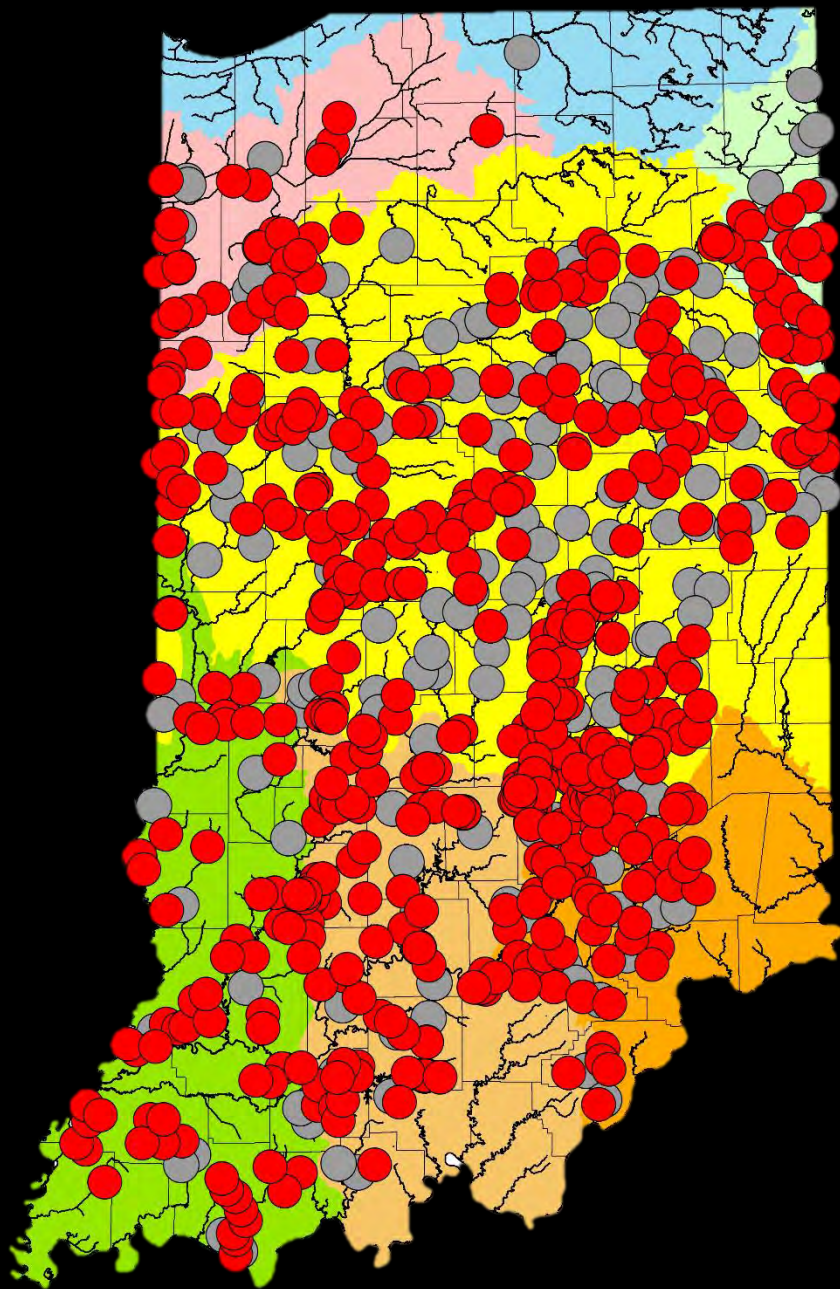


*Lythrurus fasciolaris*  
(Scarlet Shiner)

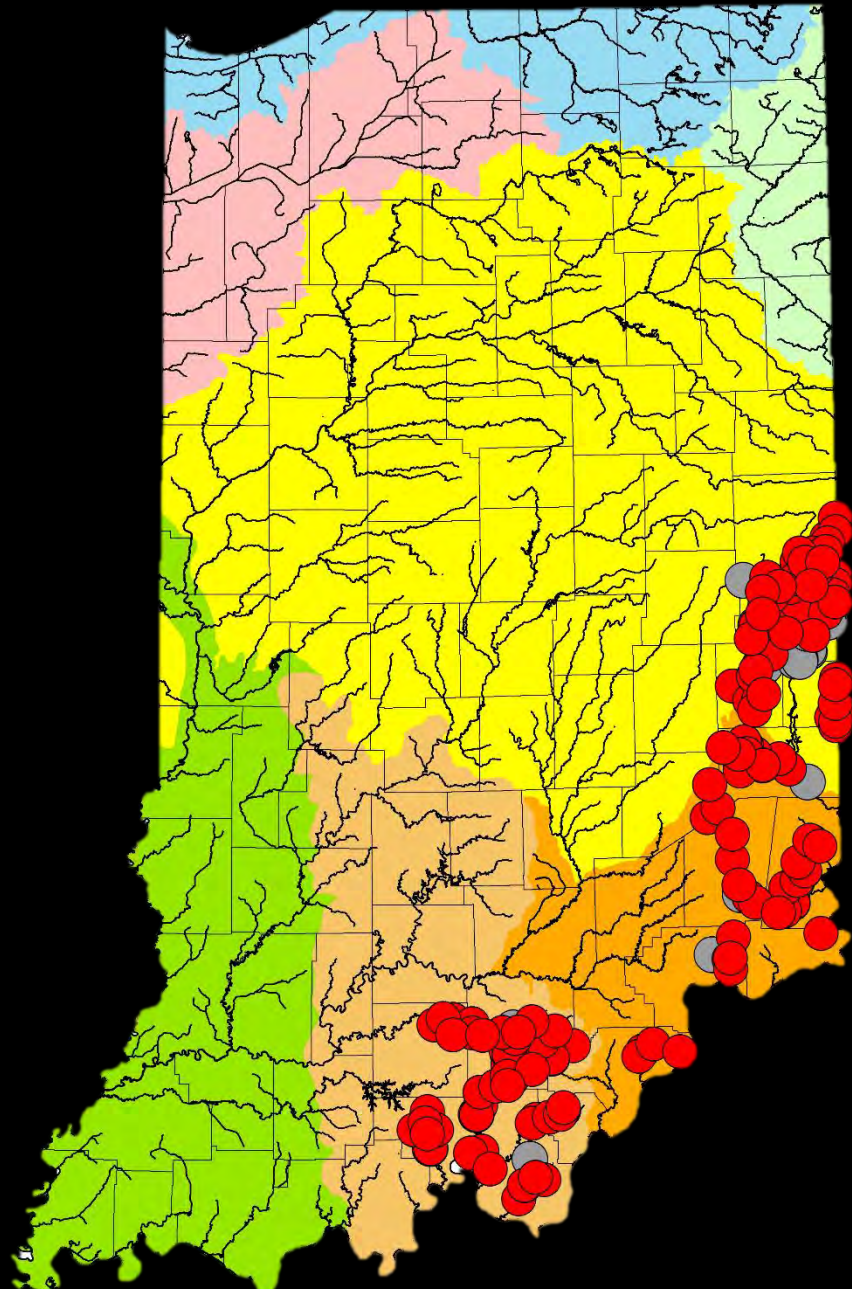
*Lythrurus umbratilis*  
(Redfin Shiner)



*Lythrurus umbratilis* (Redfin Shiner)

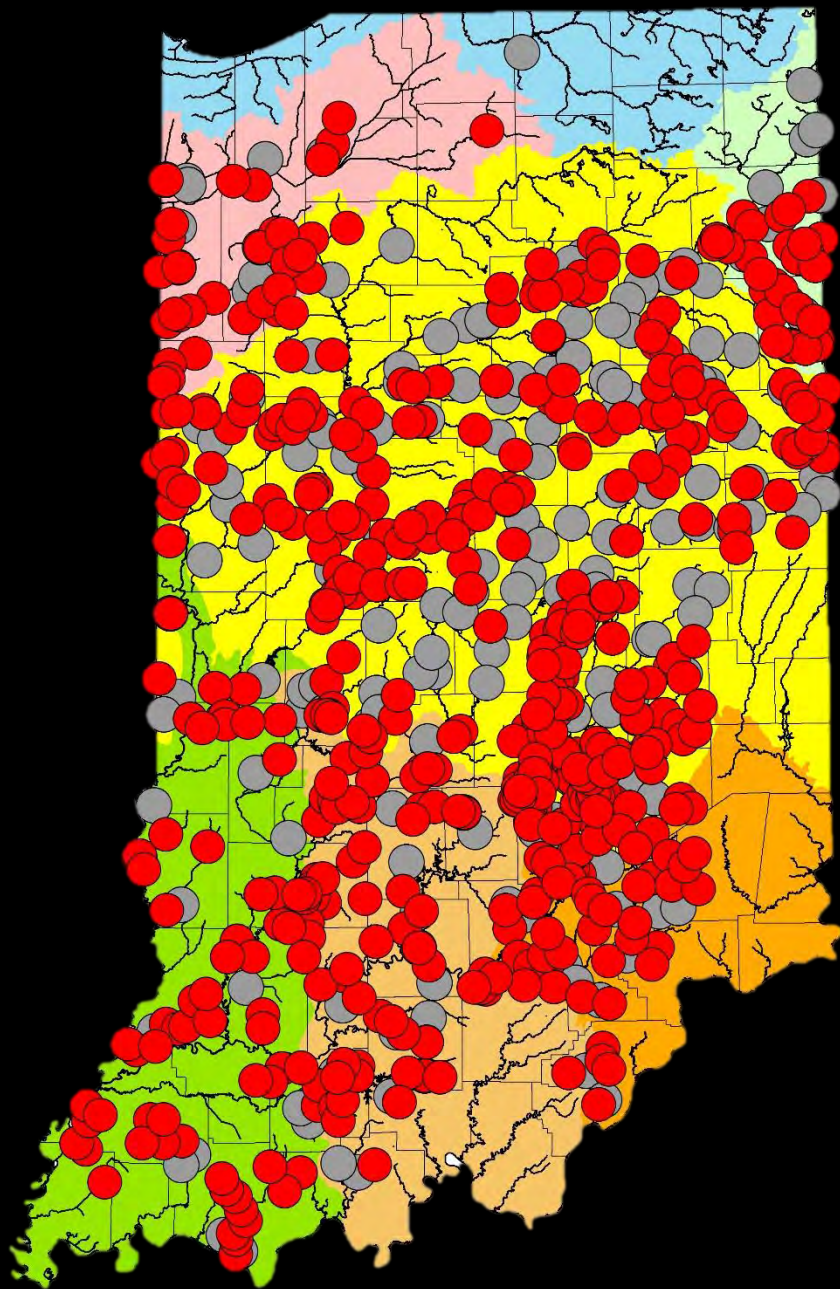


*Lythrurus fasciolaris* (Scarlet Shiner)

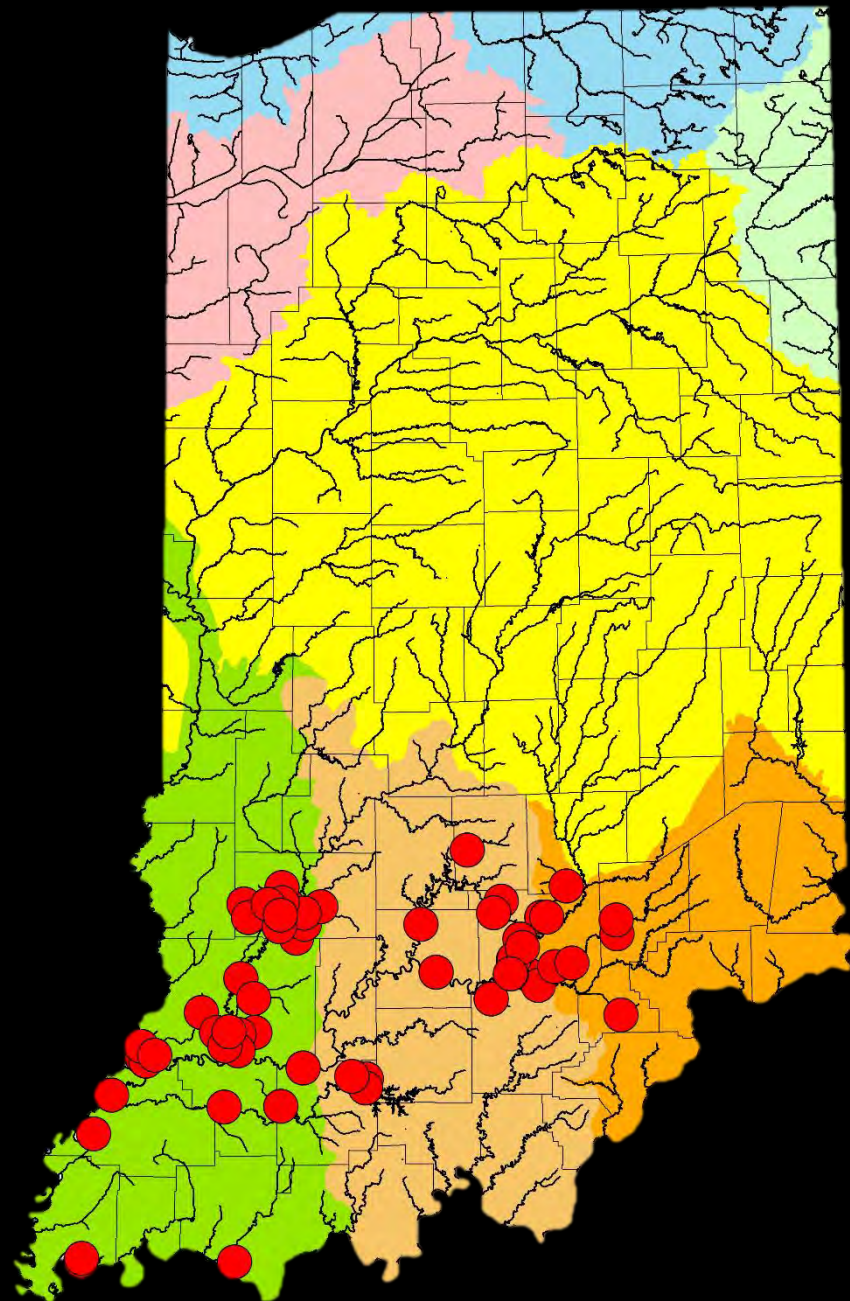




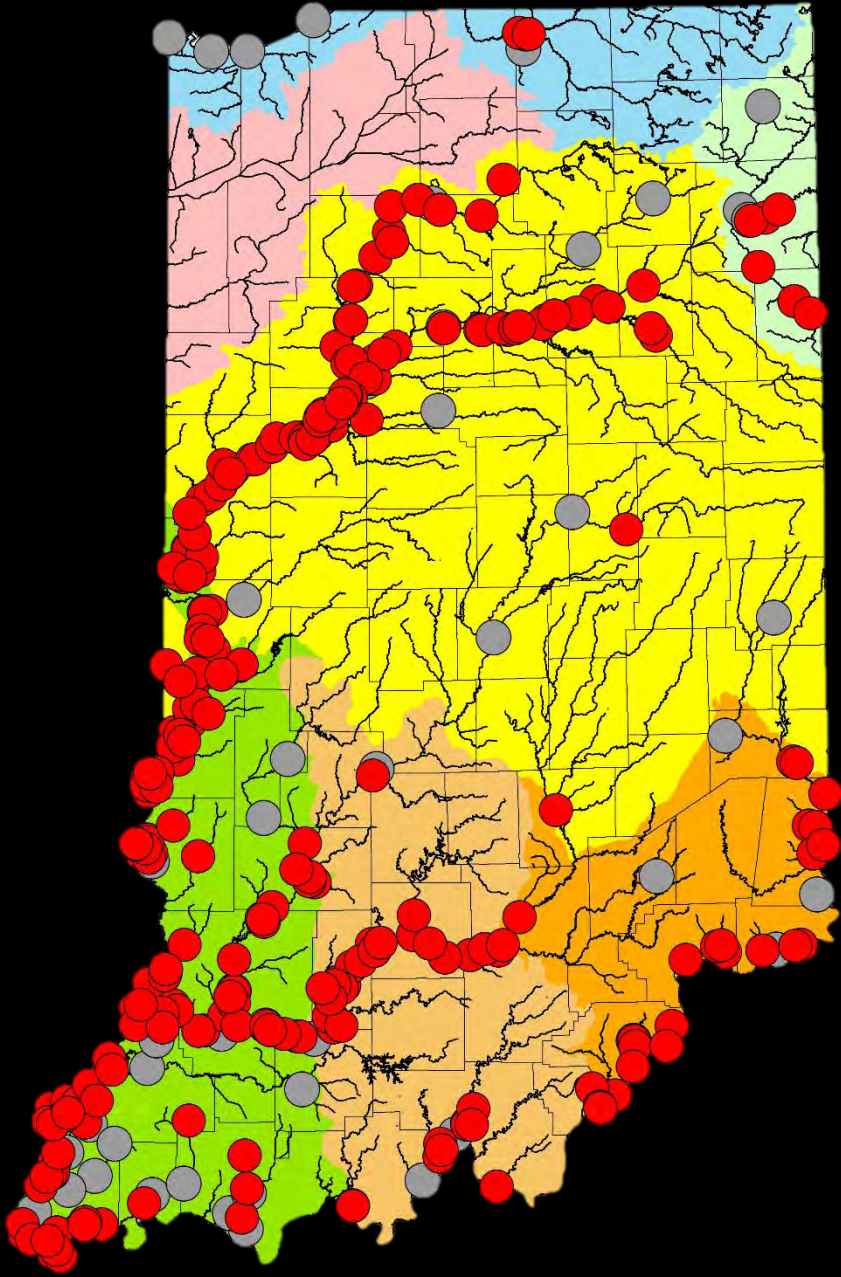
*Lythrurus umbratilis* (Redfin Shiner)



*Lythrurus fumeus* (Ribbon Shiner)

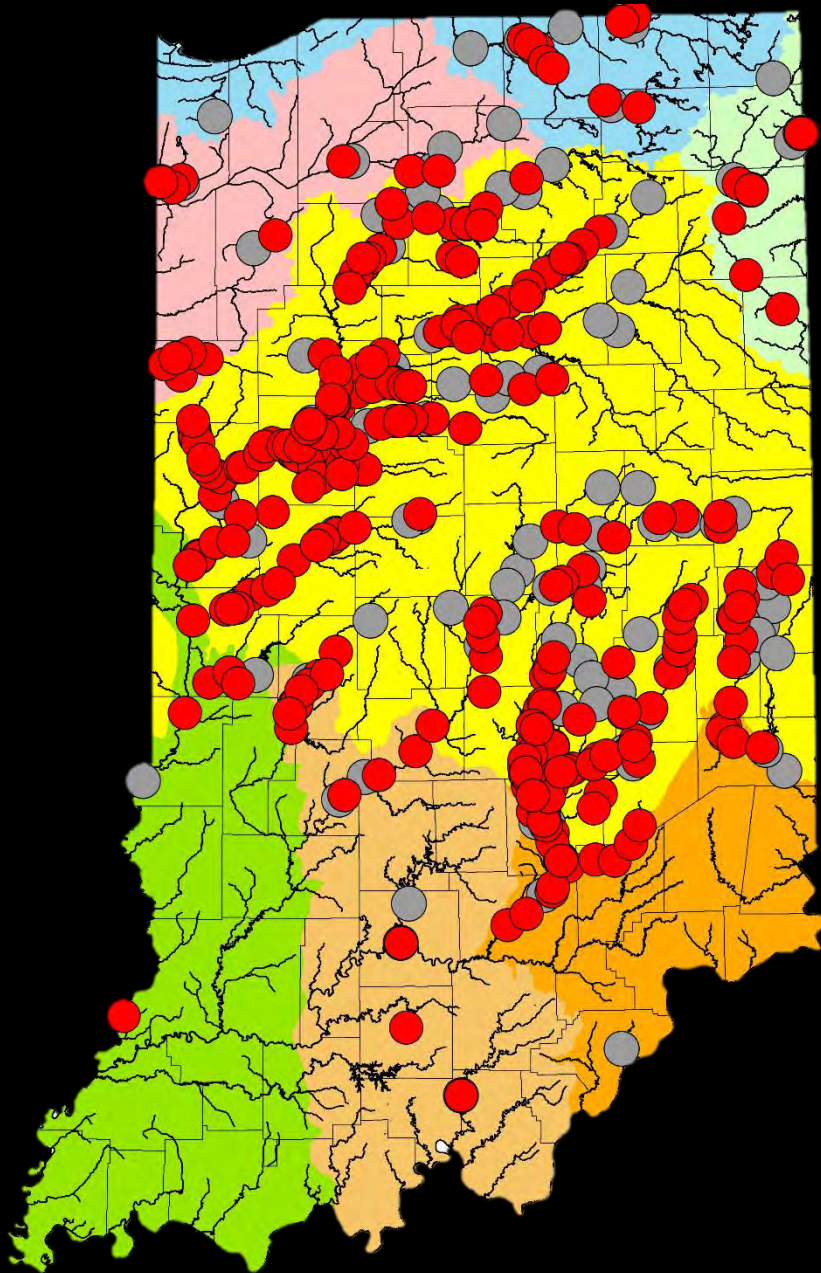


# *Notropis atherinoides* (Emerald Shiner)



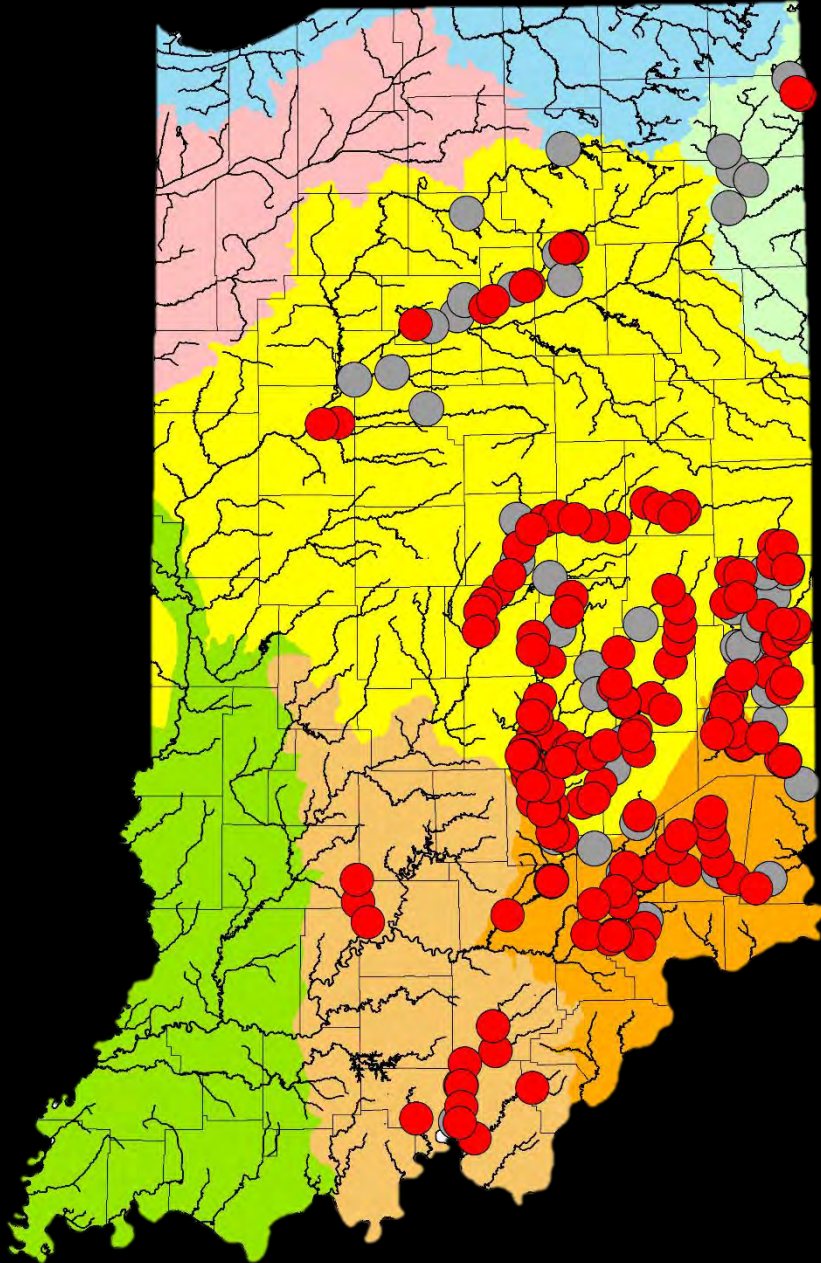
- 40b. scales between head and dorsal fin origin not small and crowded
- 43a. dorsal fin origin well behind pelvic fin origin
- 44a. snout short and rounded

# *Notropis rubellus* (Rosyface Shiner)



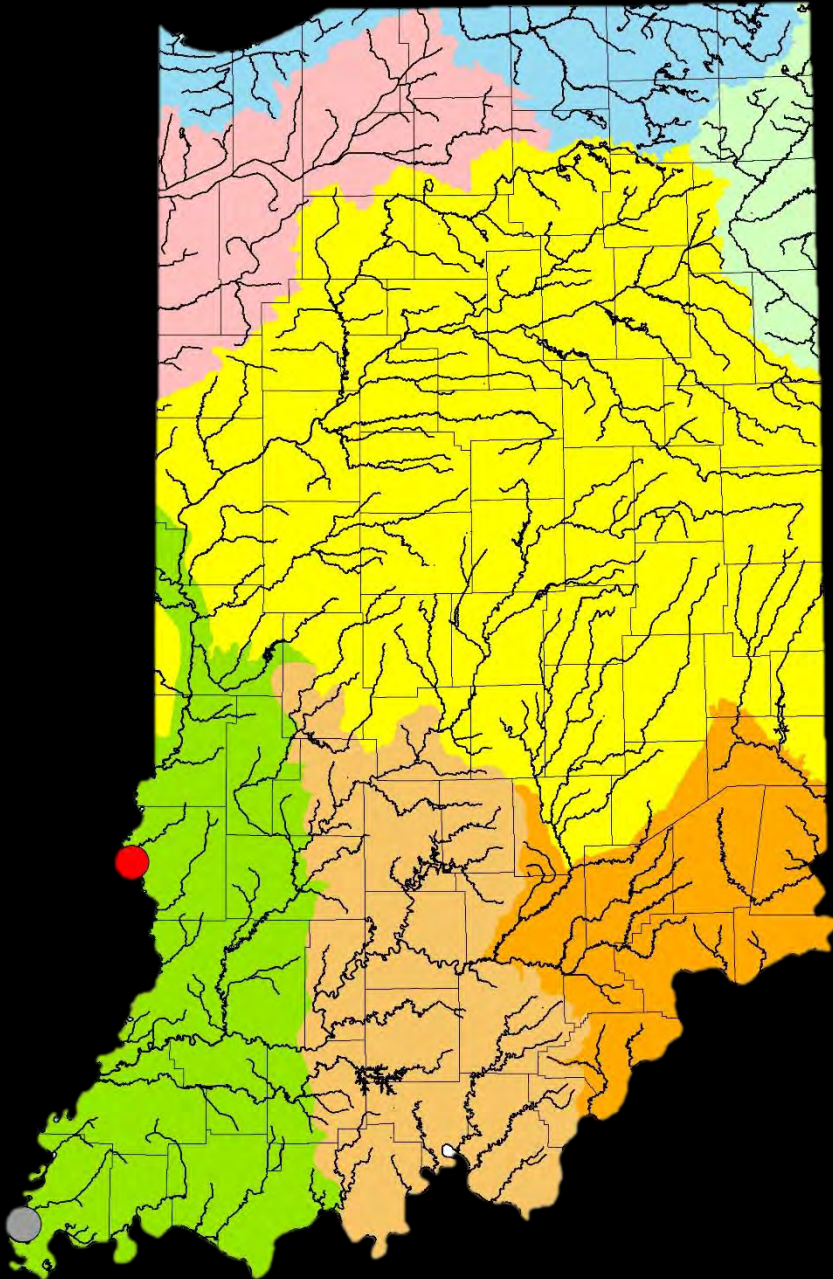
- 40b. scales between head and dorsal fin origin not small and crowded
- 43a. dorsal fin origin well behind pelvic fin origin
- 44b. Snout longer and pointed

# *Notropis photogenis* (Silver Shiner)



- 40b. scales between head and dorsal fin origin not small and crowded
- 43b. dorsal fin origin even with or just slightly behind pelvic fin origin
- 45a. 2 distinct, black, crescent-shaped areas between nostrils

# *Notropis shumardi* (Silverband Shiner)



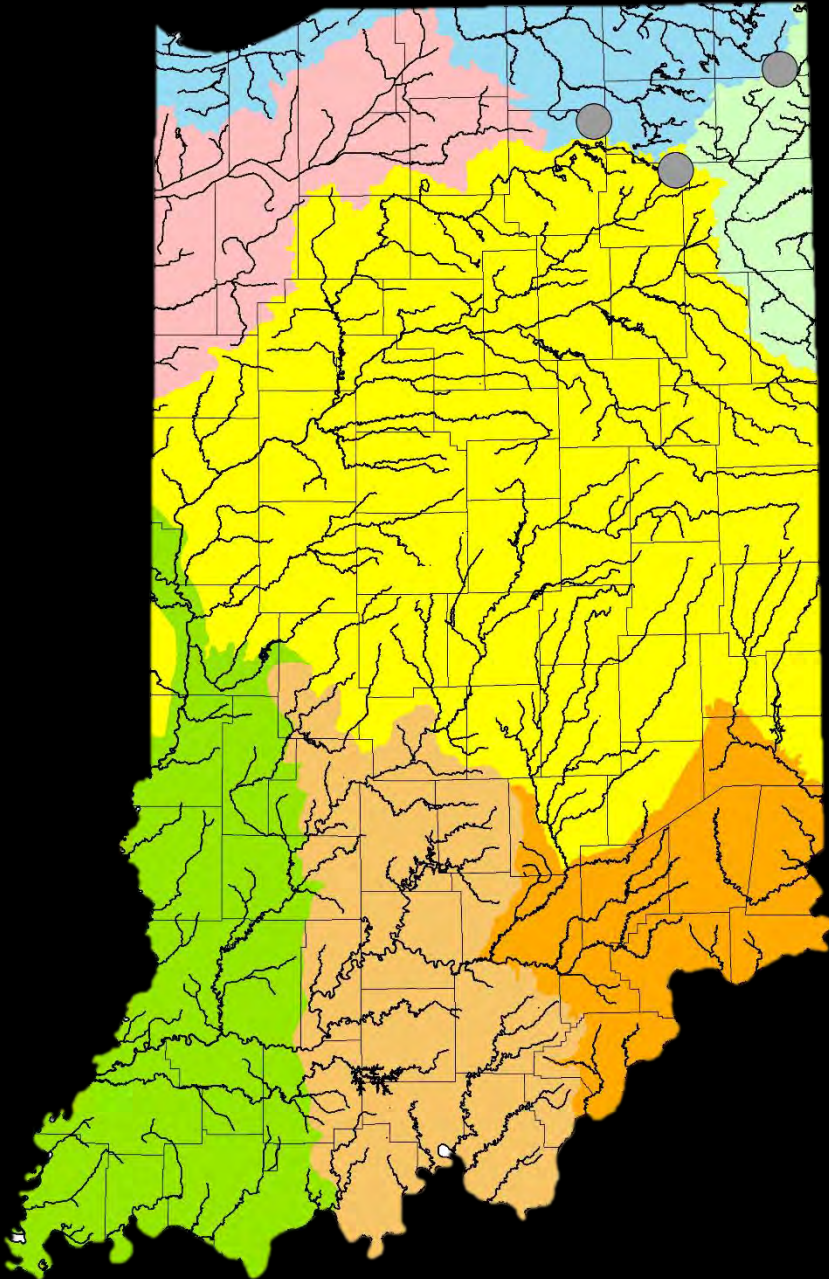
- 40b. scales between head and dorsal fin origin not small and crowded
- 43b. dorsal fin origin even with or just slightly behind pelvic fin origin
- 45b. no distinct, black, crescent-shaped areas between nostrils

**46a(36). blackish lateral band, continuing forward through eye and around muzzle**



**46b. lateral band dusky or indistinct, not continuing forward through eye and around muzzle.....go to 52**

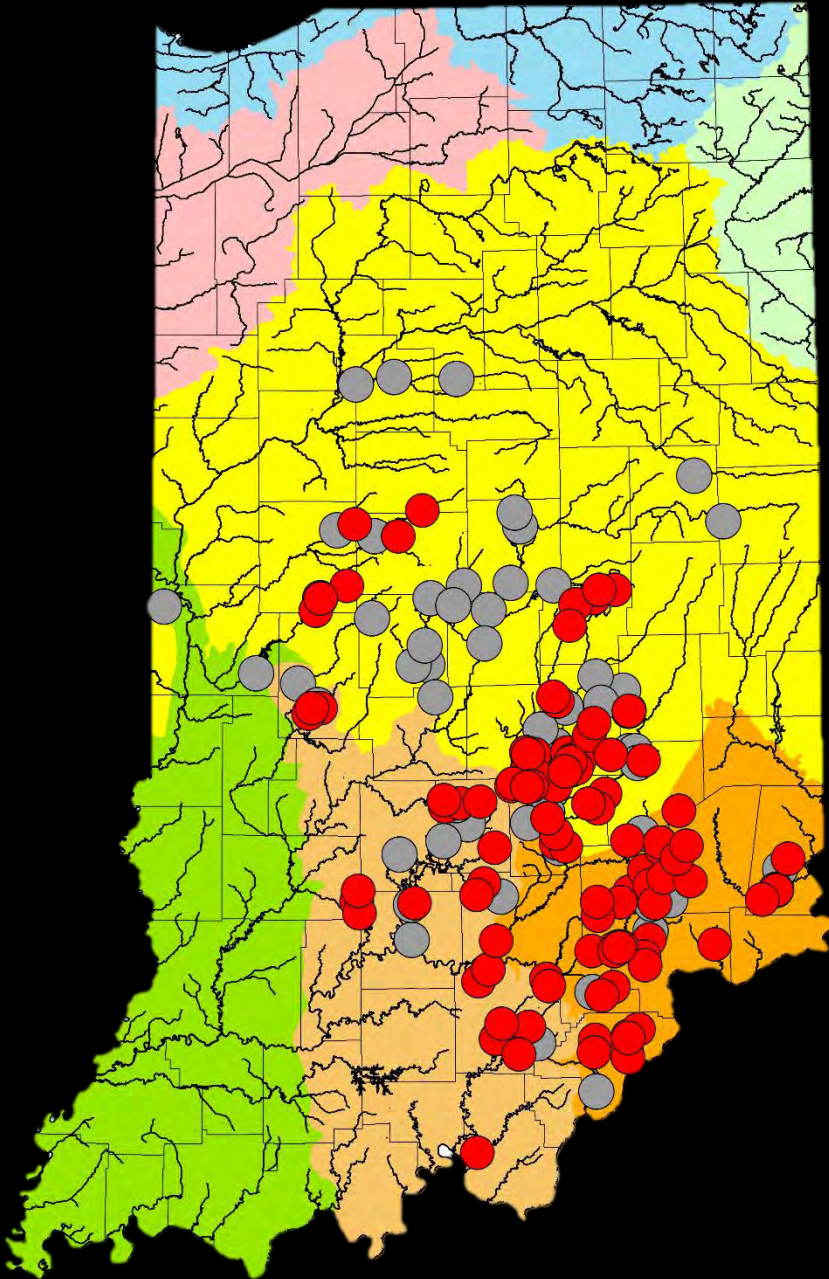
# *Notropis anogenus* (Pugnose Shiner)



47a. lining of body cavity black

48a. mouth vertical, about 80 degrees  
with horizontal

# *Notropis boops* (Bigeye Shiner)

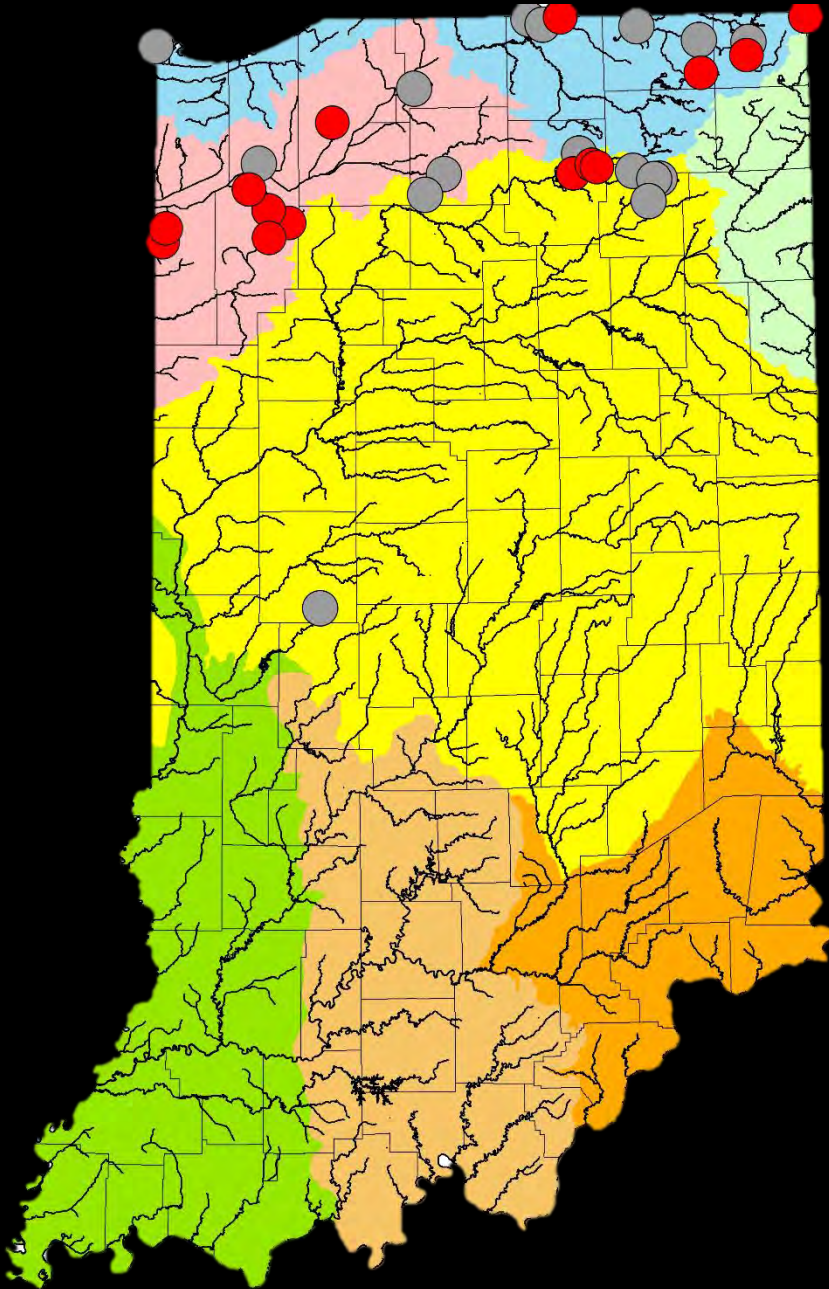


47a. lining of body cavity black

48b. mouth oblique, about 45 degrees  
with horizontal

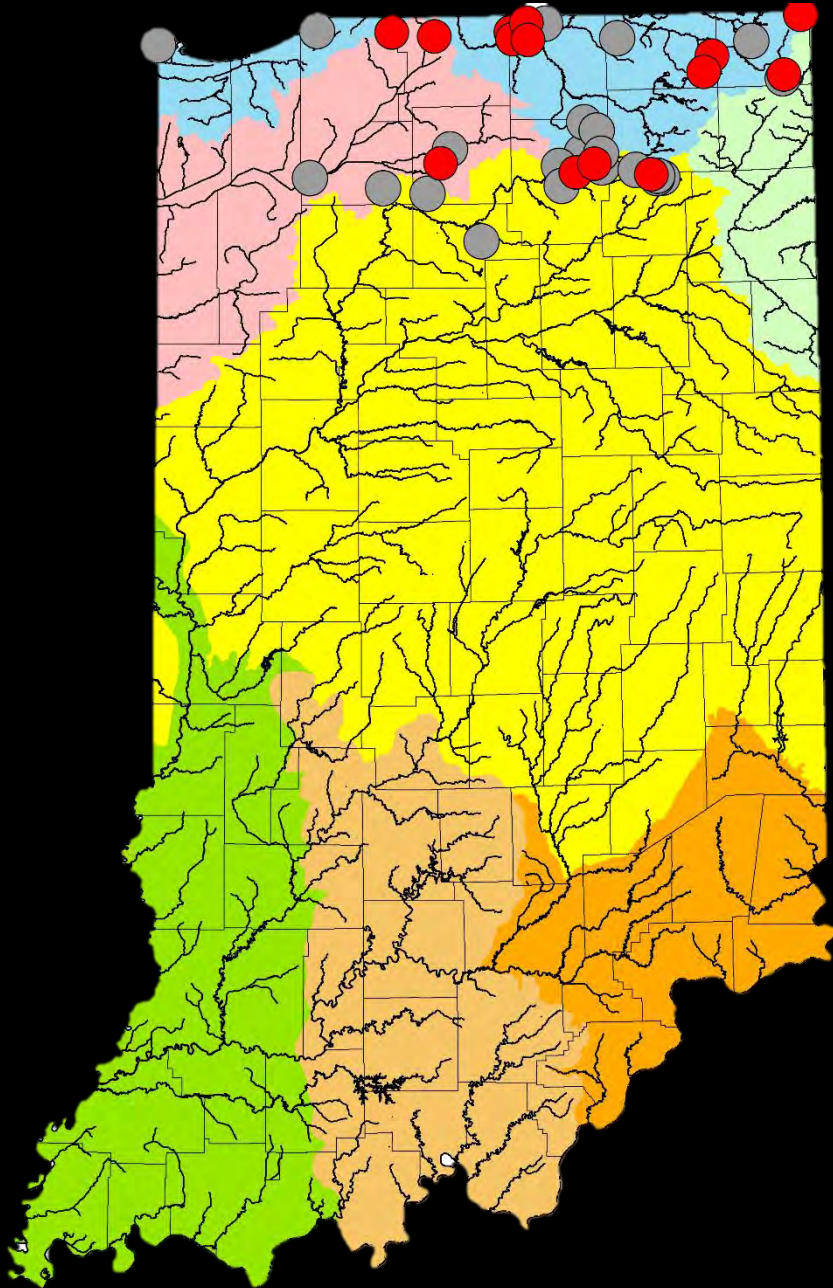


# *Notropis heterolepis* (Blacknose Shiner)



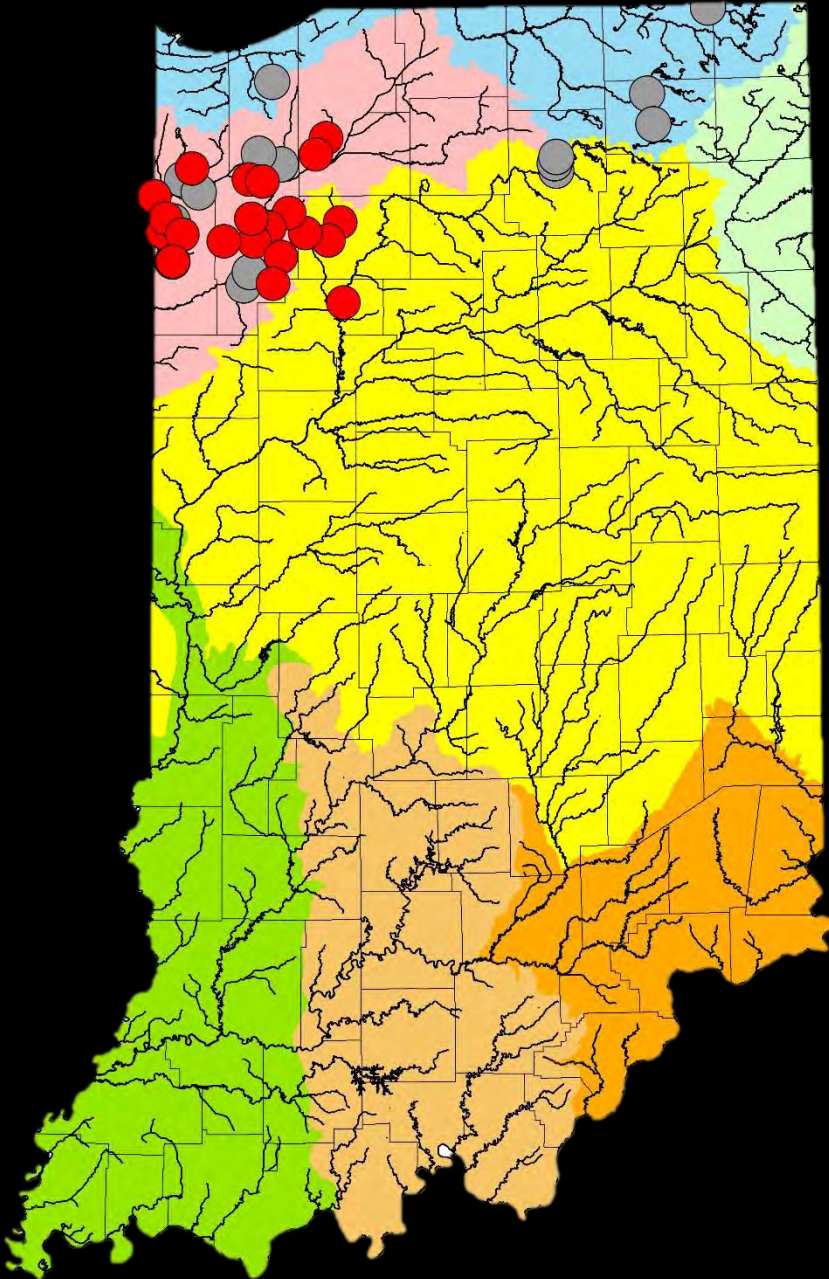
47b. lining of body cavity silvery  
49a. lower lip and chin without  
black pigment

# *Notropis heterodon* (Blackchin Shiner)



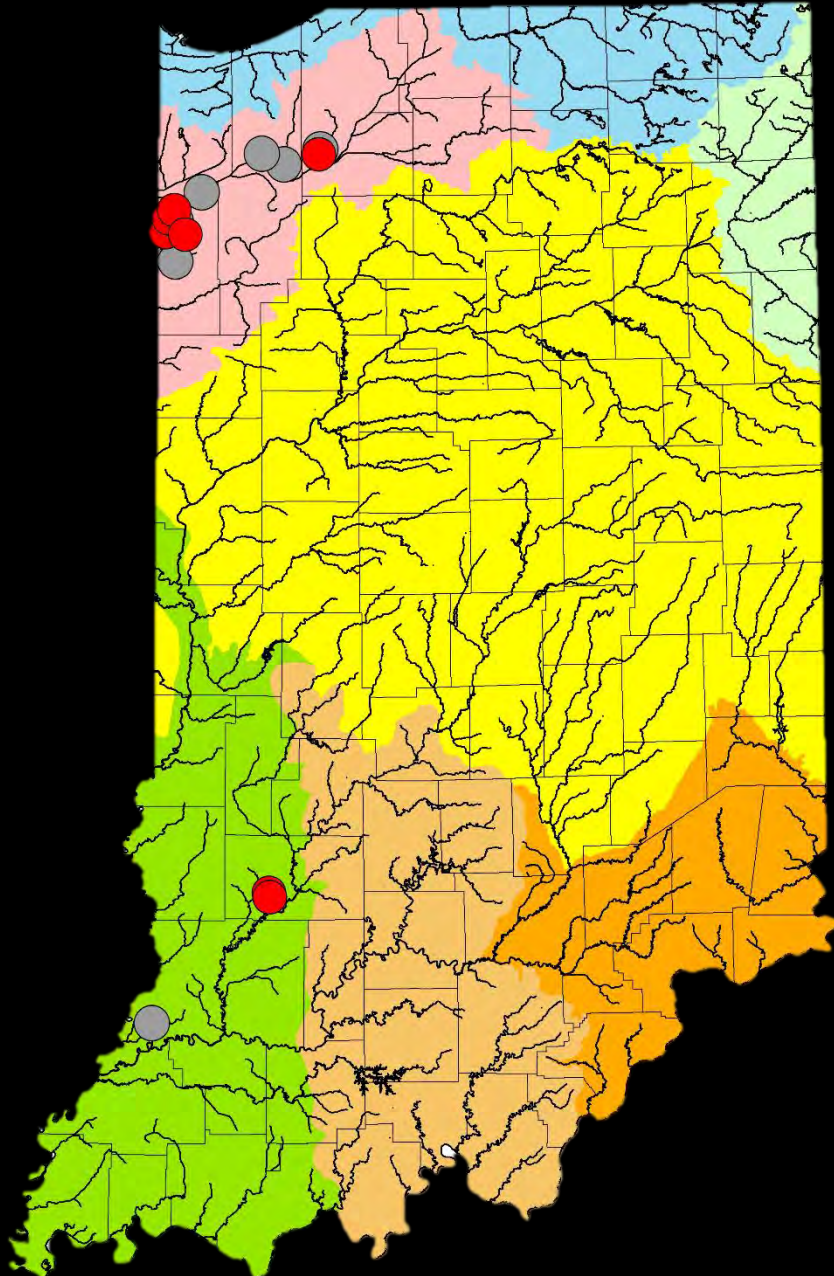
- 47b. lining of body cavity silvery
- 49b. lower lip and chin with black pigment
- 50a. dark stripe on midline of back poorly defined in front of dorsal fin

# *Notropis chalybaeus* (Ironcolor Shiner)



- 47b. lining of body cavity silvery
- 49b. lower lip and chin with black pigment
- 50b. dark stripe on midline of back sharply defined in front of dorsal fin
- 51a. anal fin rays 8

# *Notropis texanus* (Weed Shiner)



- 47b. lining of body cavity silvery
- 49b. lower lip and chin with black pigment
- 50b. dark stripe on midline of back sharply defined in front of dorsal fin
- 51b. anal fin rays 7

*Notropis texanus* (Weed Shiner)



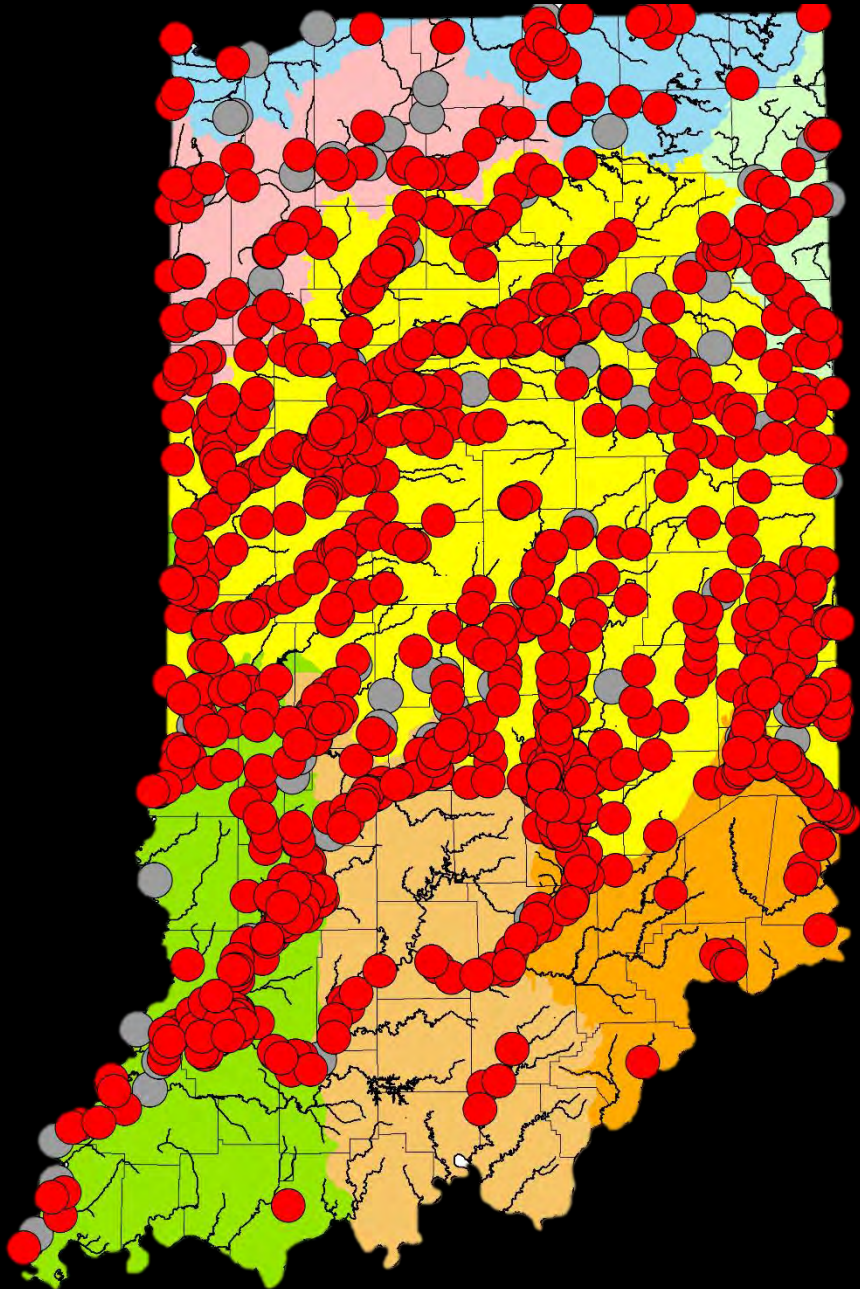
*Notropis chalybaeus* (Ironcolor Shiner)

**52a(46). anal fin rays 7**



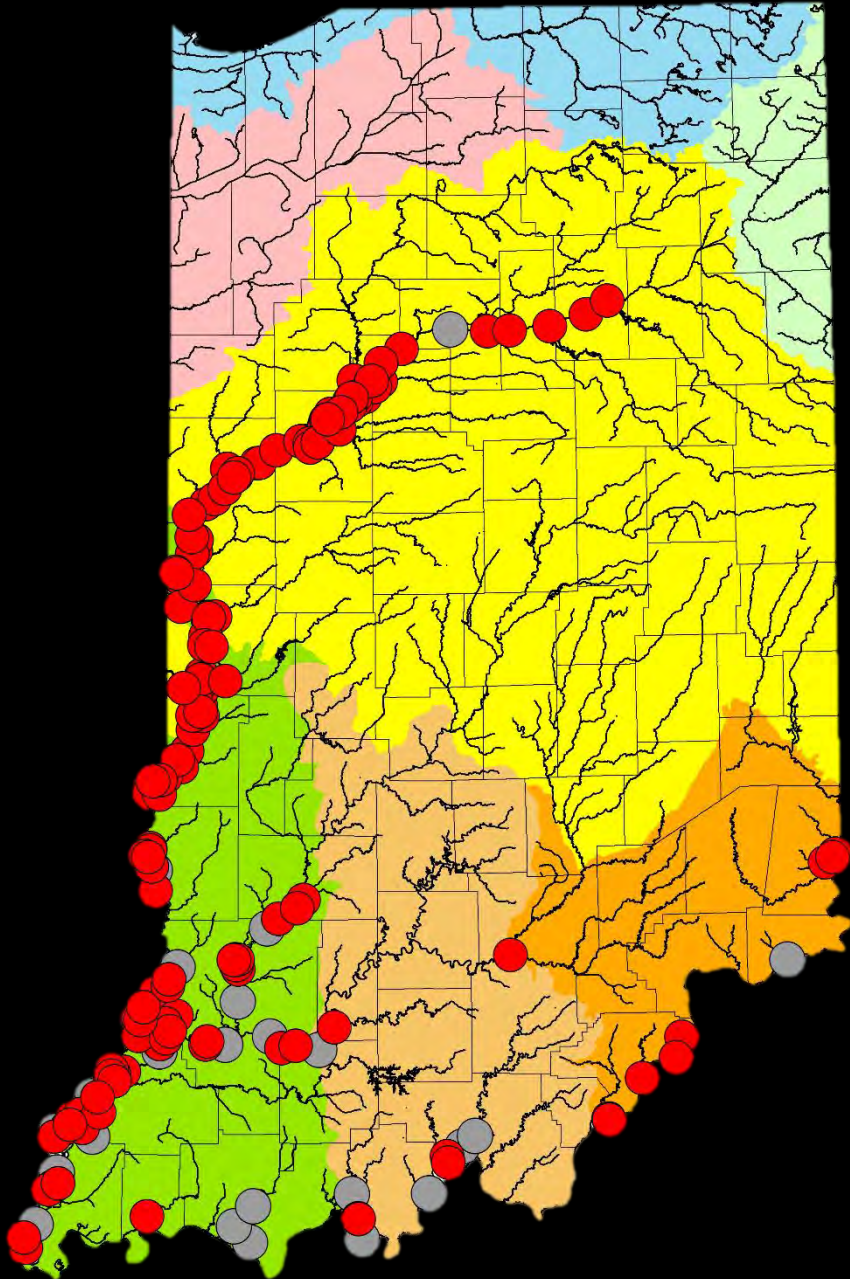
**52b. anal fin rays 8.....go to 54**

# *Notropis stramineus* (Sand Shiner)



53a. stripe along midline of back  
expanded just in front of dorsal fin

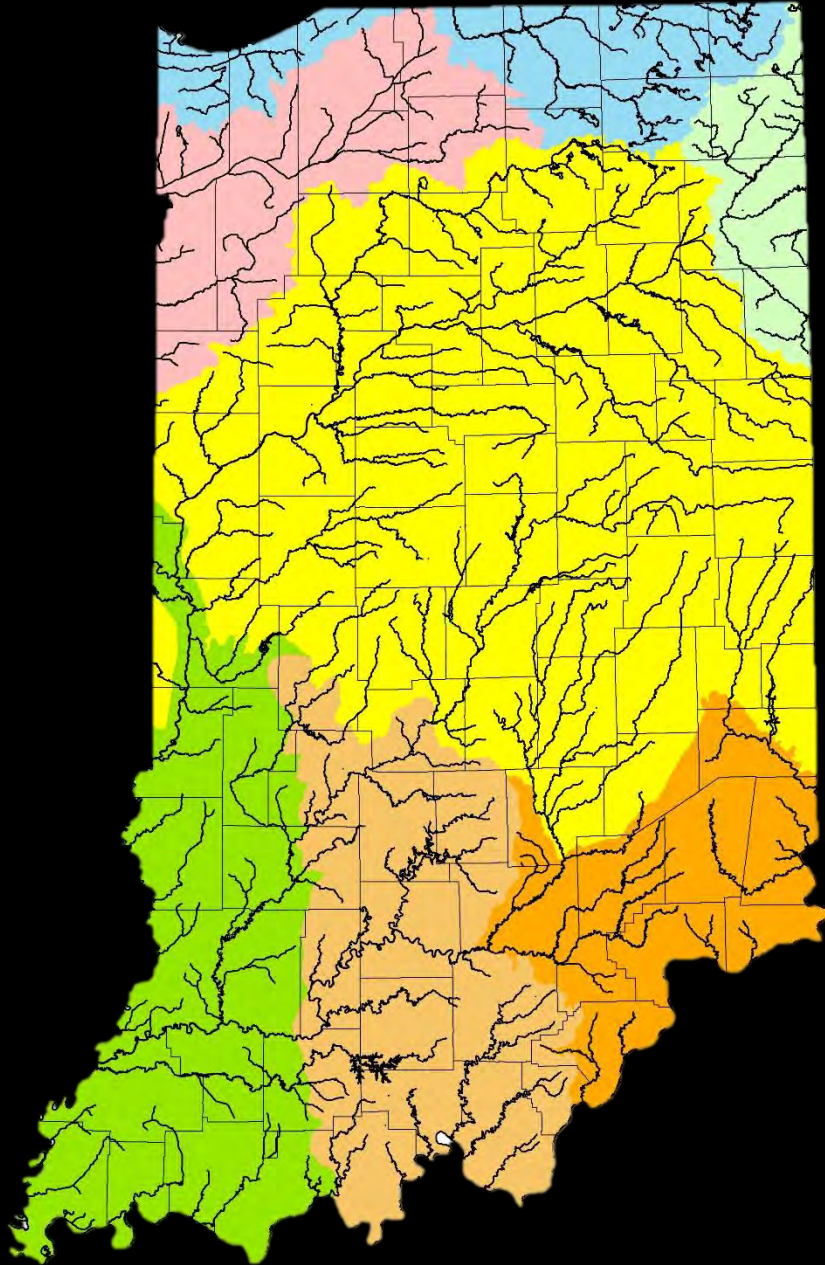
# *Notropis blennius* (River Shiner)



53b. stripe along midline of back  
uniform in width

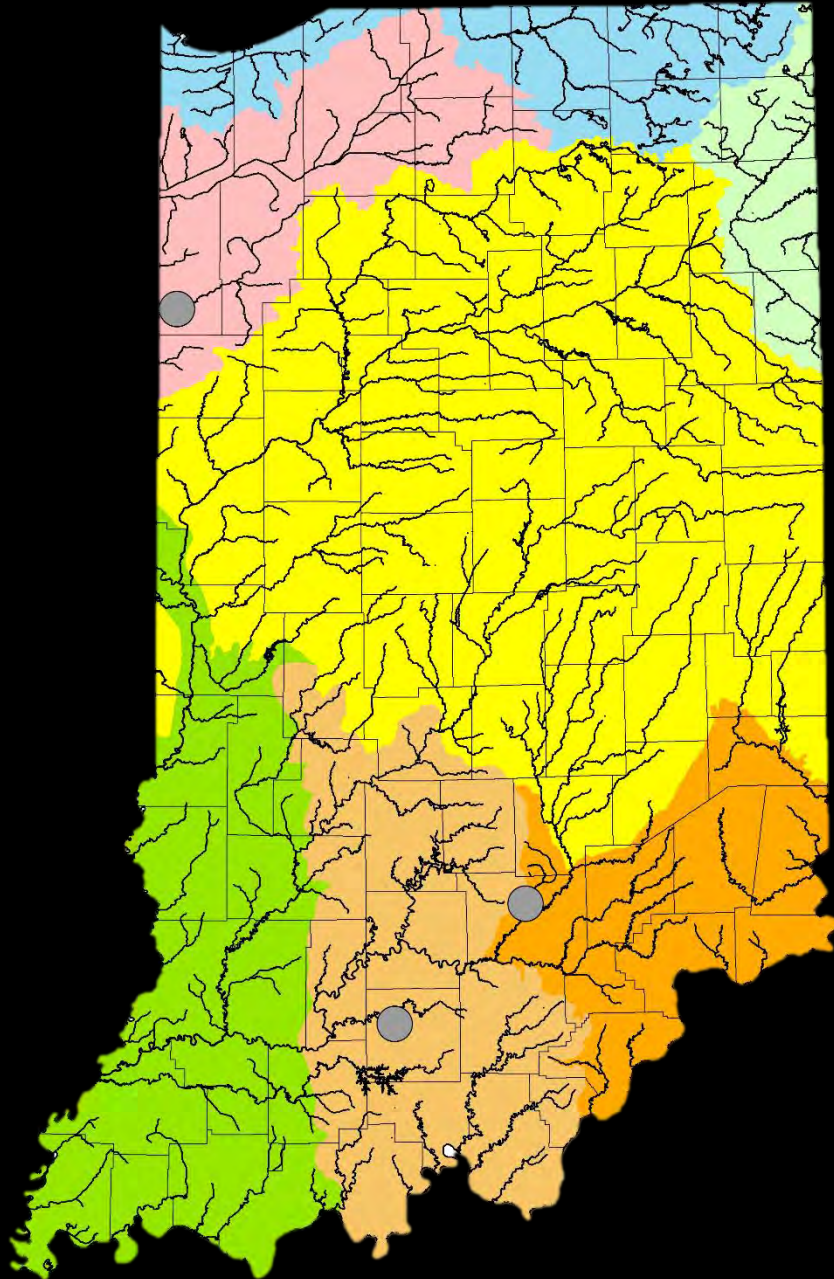


# *Notropis dorsalis* (Bigmouth Shiner)



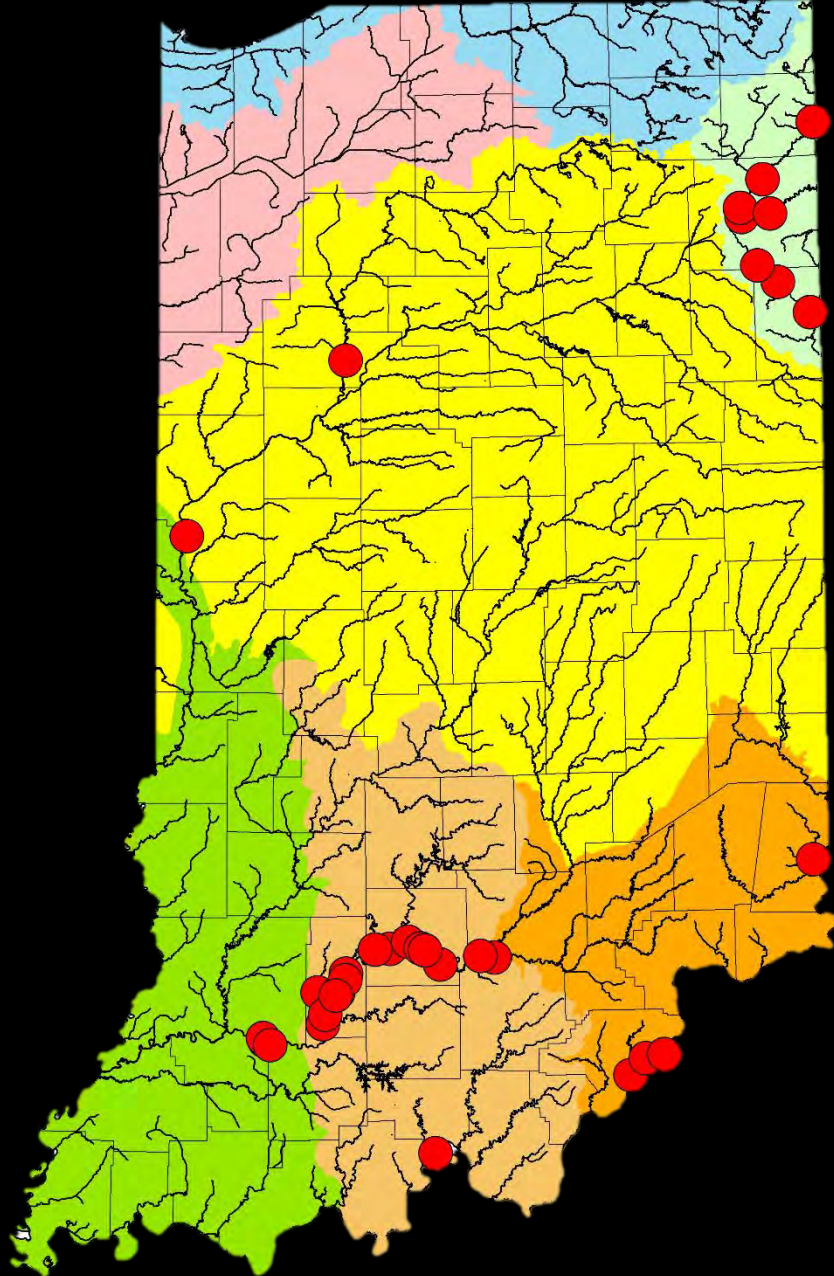
54a(52). lateral length of upper jaw  
greater than eye diameter

# *Hybopsis amnis* (Pallid Shiner)



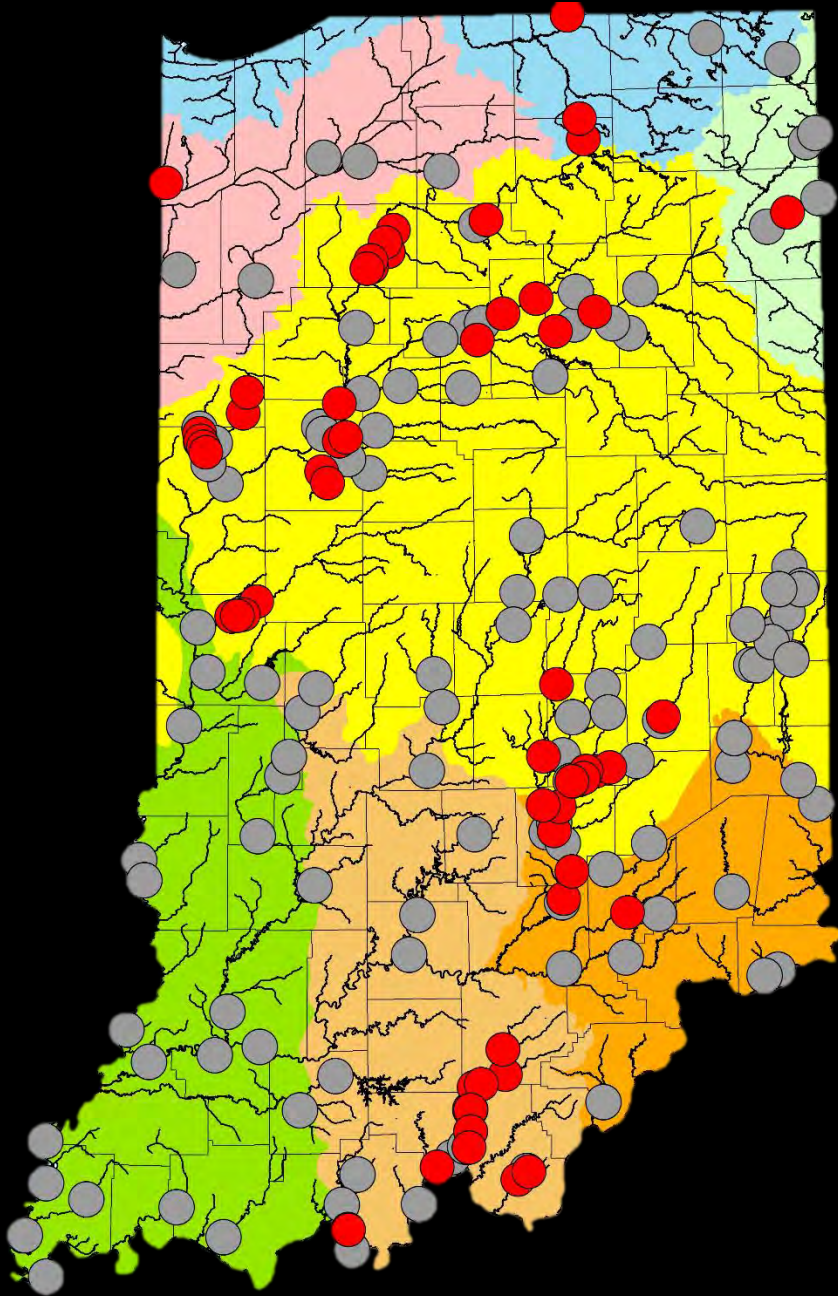
**55a(54). Width of anterior lateral line scales going 2 times or less into their depth**

# *Notropis buchanaani* (Ghost Shiner)



56a. tips of pelvic fins reaching to or beyond anal fin origin

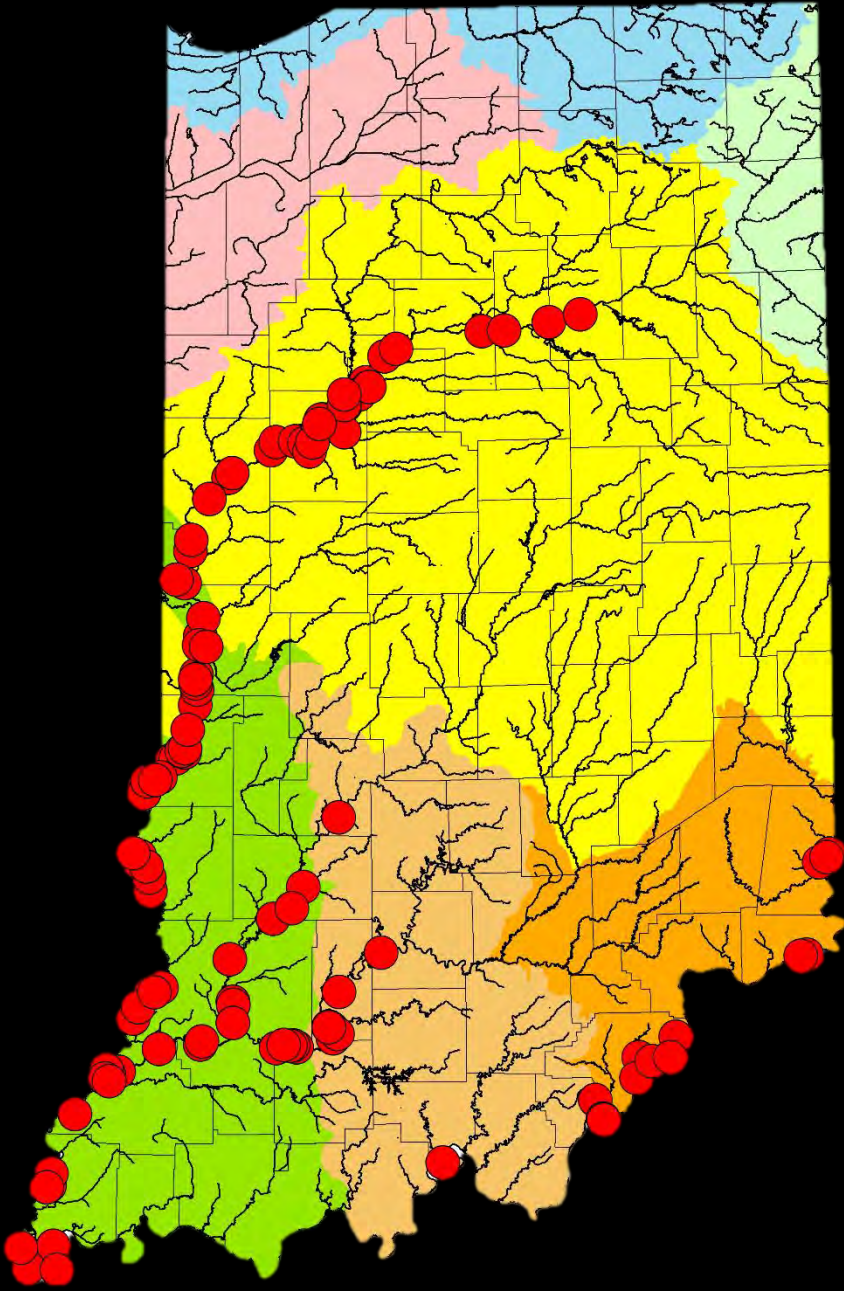
# *Notropis volucellus* (Mimic Shiner)



56b. tips of pelvic fins not reaching to anal fin origin

57a. color dark, markings usually prominent

# *Notropis wickliffi* (Channel Shiner)



56b. tips of pelvic fins not reaching to anal fin origin

57b. color moderately dark, markings usually not as prominent