**Table S1.** Classification of non-native fish species using the Dispersal-Origin-Status-Impact (DOSI) classification scheme for the Pilica River.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Site** | **Species** | **Dispersal Mechanism** | **Origin** | **Status** | **Impact** | **Priority** | **Reference** |
| *Pilica River* | *Babka gymotrachelus* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a] | Extending range and abundance[**S**a*i,ii*] | ecological: no effect on native co-occurring species was observed; economic: *NA*; culture: *NA*; health: *NA*[**I**b*ii*] | High Priority | Głowacki et al. 2024.  |
| *Neogobius fluviatilis* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a] | Extending range and increase abundance[**S**a*i,ii*] | ecological: competitive pressure on native benthic species; economic: *NA*; culture: *NA*; health: *NA*[**I**a*ii*] | Highest Priority | Głowacki et al. 2024.  |
| *Proterorhinus semilunaris* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a] | Extending range and increase abundance[**S**a*i,ii*] | ecological: no effect on native co-occurring species was observed; economic: *NA*; culture: *NA*; health: *NA*[**I**b*ii*] | High Priority | Głowacki et al. 2024.  |
| *Percottuss glenii* | Natural spread, ephemeral occurrence in river due to migration from oxbow lakes[**D**b*i,ii*] | East Asia[**O**a] | Static Range and abundance[**S**b*i,ii*] | ecological: *NA*; economic: *NA*; culture: *NA*;  health: *NA*[**I**b] | Medium Priority | Głowacki et al. 2024.  |
| *Ameiurus nebulosus* | Initially introduced in many locations for sport fishing in 19th century, then naturally spread, possibly with human assistanceephemeral occurrence in river due to migration from ponds and oxbow lakes[**D**ai,ii] | North America[**O**a] | Deceasing range and abundance[**S**c*i,ii*] | ecological: no effect on native co-occurring species was observed; ecological:*NA*; economic: *NA*; culture:*NA*; health: *NA*[**I**b*ii*] | Low Priority | Głowacki et al. 2024.  |
| *Carassius gibelio* | Intentional introductions by angling associations and anglers, also escapes from ponds,then naturally spread [**D**ai,ii] | East Asia[**O**a] | Extending range and abundance[**S**a*i,ii*] | ecological: competitive advantage over native *Carassius* species; economic: *NA*; culture: *NA*; health: *NA*[**I**a*ii*] | Highest Priority | Głowacki et al. 2024. Penczak et al. 2006 |
| *Pseudorasbora parva* | Human-mediated, accidentally introduced with stocking material, ephemeral occurrence in river due to escape from fish ponds[**D**b*ii*] | East Asia[**O**a] | Static range and abundance[**S**b*i,ii*] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | Medium Priority | Głowacki et al. 2024.  |

**Table S2.** Classification of non-native fish species using the Dispersal-Origin-Status-Impact (DOSI) classification scheme for the Bzura River.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Site** | **Species** | **Dispersal Mechanism** | **Origin** | **Status** | **Impact** | **Priority** | **Reference** |
| *Bzura River* | *Babka gymotrachelus* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a*i*] | Decreasing range and static abundance[**S**bicii] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | Medium Priority | Field observations in 2013, Penczak et al. 2012 |
| *Neogobius fluviatilis* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a] | Extending range and increase abundance[**S**a*i,ii*] | ecological: competitive pressure on native benthic species; economic: *NA*; culture: *NA*; health: *NA*[**I**a*ii*] | Highest Priority | Field observations in 2013, Penczak et al. 2012 |
| *Proterorhinus semilunaris* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a*i*] | Increasing range and static abundance[**S**b*i*a*ii*] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | High Priority | Field observations in 2013, Penczak et al. 2012 |
| *Percottuss glenii* | Natural spread, ephemeral occurrence in river due to migration from oxbow lakes[**D**b*i,ii*] | East Asia[**O**a] | Static range and abundance[**S**b*i,ii*] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | Medium Priority | Field observations in 2013, Penczak et al. 2012 |
| *Carassius gibelio* | Intentional introductions by angling associations and anglers, also escapes from ponds,then naturally spread [**D**ai,ii] | East Asia[**O**a*i*] | Extending range and static abundance[**S**biaii] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | Medium Priority | Field observations in 2013, Penczak et al. 2012 |
| *Pseudorasbora parva* | Human-mediated, accidentally introduced with stocking material, ephemeral occurrence in river due to escape from fish ponds[**D**b*ii*] | East Asia[**O**a*i*] | Range and abundance static[**S**b*i,ii*] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | Medium Priority | Field observations in 2013, Penczak et al. 2012 |
| *Cyprinus carpio* | human-mediated spread, ephemeral occurrence in river due to escape from fish ponds[**D**a*i,ii*] | Danube catchment[**O**a*i*] | Static range and shrinking abundance[**S**c*i*b*ii*] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | Medium Priority | Penczak et al. 2012Field observations in 2018 |

**Table S3.** Classification of non-native fish species using the Dispersal-Origin-Status-Impact (DOSI) classification scheme for the Skrwa Prawa River.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Species | Dispersal Mechanism | Origin | Status  | Impact | Priority | Reference |
| *Skrwa Prawa River* | *Babka gymotrachelus* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a] | Extending range and increasing abundance[**S**a*i,ii*] | ecological: competitive pressure on native benthic species; economic: *NA*; culture: *NA*; health: *NA* [**I**a*ii*] | Highest Priority | Jażdżewski et al. 2012 |
| *Proterorhinus semilunaris* | Natural spread, possibly human-mediated[**D**b*i,ii*] | Ponto-Caspian region[**O**a] | Extending range and increasing abundance[**S**a*i,ii*] | ecological: no effect on native co-occurring species was observed; economic: *NA*; culture: *NA*; health:*NA*[**I**b*ii*] | High Priority | Jażdżewski et al. 2012 |
| *Percottuss glenii* | Natural spread, possibly human-mediated[**D**b*i,ii*] | East Asia[**O**a] | Extending range and increasing abundance[**S**a*i,ii*] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | High Priority | Jażdżewski et al. 2012 |
| *Carassius gibelio* | Accidentally introduced with stocking material, then naturally spread, possibly with human assistance[**D**ai,ii] | East Asia[**O**a] | Extending range and increased abundance[**S**ai,ii] | ecological: *NA*; economic: *NA*; culture: *NA*; health: *NA*[**I**b] | High Priority | Jażdżewski et al. 2012 |

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