

Supplemental material

Common carp disrupt ecosystem structure and function through middle-out effects

*Mark A. Kaemingk^{A,H}, Jeffrey C. Jolley^B, Craig P. Paukert^C, David W. Willis^A, Kjetil Henderson^D,
Richard S. Holland^E, Greg A. Wanner^F, and Mark L. Lindvall^G*

^ADepartment of Natural Resource Management, South Dakota State University, Brookings, SD 57007, USA.

^BUnited States Fish and Wildlife Service, Columbia River Fisheries Program Office, 1211 SE Cardinal Court, Vancouver, WA 98683, USA.

^CUnited States Geological Survey, Missouri Cooperative Fish and Wildlife Research Unit, Department of Fisheries and Wildlife Sciences, University of Missouri, Columbia, MO 65211, USA.

^DUnited States Fish and Wildlife Service, Crab Orchard National Wildlife Refuge, Route 148, Marion, IL 62959, USA.

^ENebraska Game and Parks Commission, PO Box 30370, Lincoln, NE 68701, USA.

^FUSDA Forest Service, Mt Hood National Forest, Zigzag Ranger District, 70220 East Highway 26, Zigzag, OR 97049, USA.

^GValentine National Wildlife Refuge, 40811 Hackberry Drive, Valentine, NE 69201, USA.

^HCorresponding author. Present address. School of Natural Resources, University of Nebraska–Lincoln, Lincoln, NE 68583, USA. Email: mkaemingk2@unl.edu

Table S1. Lake, surface area (ha), common carp electrofishing catch per unit effort (CPUE; mean number per hour of electrofishing), and presence or absence of other fishes sampled by electrofishing and trap netting in 16 Nebraska Sandhill Lakes during 1998 and 1999

Species abbreviations: BLB, black bullhead; BLC, black crappie *Pomoxis nigromaculatus*; BLG, bluegill; GSH, golden shiner; GSF, green sunfish; GRP, grass pickerel; HBS, hybrid sunfish *Lepomis* spp.; LMB, largemouth bass; NOP, northern pike; PMS, pumpkinseed; YEP, yellow perch

Lake	Surface area (ha)	Common carp CPUE	Species present
Alkali	154	0	BLB, BLG, LMB, YEP
Shell	66	0	BLB, BLC, BLG, GRP, HBS, LMB, NOP, PMS, YEP
Lackaff West	69	0	BLB, BLG, GSH, GSF, GRP, HBS, NOP, YEP
Hagan	126	0	BLB, BLC, GSH, GSF, LMB, YEP
Clear	79	0	BLB, BLC, BLG, LMB, NOP, PMS, YEP
Tower	123	0	BLC, BLG, GSH, GSF, HBS, LMB, YEP
Island	283	0	BLC, BLG, HBS, LMB, YEP
Watts ^A	93	0	BLB, BLG, GSH, HBS, LMB, YEP
Goose	81	1.0 (0.7)	BLB, BLG, HBS, LMB, NOP, PMS, YEP
Pelican ^A	332	1.4 (0.7)	BLB, BLG, GSH, LMB, NOP, YEP
Big Alkali	341	2.0 (1.0)	BLB, BLC, NOP, YEP
Willow ^A	127	19.7 (17.9)	BLB, BLC, BLG, GSF, HBS, LMB, YEP
Dewey ^A	223	22.6 (5.5)	BLB, BLG, LMB, NOP, YEP
Clear ^A	172	12.5 (3.6)	BLG, LMB, NOP, PMS, YEP
Cameron	66	3.9 (3.0)	BLB, GSH, GSF, GRP, YEP
Home Valley	97	87.9 (24.6)	BLB, YEP

^ALocated on the Valentine National Wildlife Refuge.