**Supplemental Table 2**

| **Species** | **Habitat** | **Permanence** | **Temperature****(°C)** | **Salinitya****(mg L-1)** | **Chemistrya****(meq)** | **Paleo/Biogeographyb** |
| --- | --- | --- | --- | --- | --- | --- |
| *Limnocythere sappaensis* Staplin 1963 | Lakes, ponds (benthic) | Permanent or ephemeral | 4-32°(Eurythermic) | 700-110,000 | 7.0-10,000(Freshwater to HCO3-rich; Na-rich) | Mainly western North America |
| *Limnocythere staplini*Gutentag and Benson, 1962 | Lakes, ponds | Permanent or ephemeral | 4-32°(Eurythermic) | 500-50,000 | 0.03-7.0(Freshwater to HCO3-rich) | Across North America |
| *Limnocythere ceriotuberosa*Delorme, 1967 | Lakes, ponds | Permanent or ephemeral | 4-32°(Eurythermic) | 400-15,000 | 3.0-100.0(Freshwater to HCO3-rich to Cl-rich) | Across North America |
| *Potamocypris unicaudata* Schafer, 1943 | Lakes, ponds, streams (nektobenthic, prefers depths <2m) | Permanent | 2-32°(Eurythermic) | 200-15,000 | 8.0-100.0(Freshwater to HCO3-rich; Na-rich) | Across North America |
| *Cyprinotus glaucus*Furtos, 1933 | Lakes, ponds | Permanent or ephemeral | 4-32°(Eurythermic) | 250-10,500 | 0.5-60.0(Freshwater to HCO3-rich) | Across North America |
| *Cyprideis beaconensis*(Leroy), 1943 | Lakes, ponds | Permanent or ephemeral | 13-32°(Thermophilic) | 5,000-10,000 | 0.5-1.0(Freshwater to HCO3-rich) | Across North America |
| *Cypridopsis vidua*(O.F. Müller, 1776) | Springs, streams, lakes | Permanent or ephemeral | 2–32°(Eurythermic) | 10–10,000 | 0.10–50(Freshwater to HCO3-rich or HCO3-depleted) | Worldwide. |
| *Physocypria globula*Furtos, 1933 | Springs, streams, lakes | Permanent | 4–32°(Eurythermic) | 15–10,000 | 0.1–30.0(Freshwater to HCO3-rich or HCO3-depleted) | Across North America |
| *Chlamydotheca arcuata*(Sars), 1901 | Springs, streams, lakes | Permanent | 24–32°(Thermobiont) | 400–5,000 | 0.1–2.0(Freshwater to HCO3-rich) | Western North America |
| *Candona patzcuaro*(Tressler 1954) | Springs, streams, lakes | Permanent or ephemeral | 2–32°(Eurythermic) | 100–5,000 | 0.1–50.0(Freshwater to HCO3-rich) | Across North America |
| *Darwinula stevensoni* (Brady and Robinson 1890) | Streams, lakes, ponds | Permanent | 4–32°(Eurythermic) | 10–4,000 | 0.10–5.0(Freshwater to HCO3-rich or HCO3-depleted) | Worldwide. |
| *Potamocypris smaragdina* Vavra, 1891 | Lakes, ponds, streams (nektobenthic, prefers shallow, warm waters) | Permanent | 2-32°Eurythermic | 50-3,000 | 0.2-5.0(Freshwater to HCO3-rich; Na-rich) | Across North America |
| c*Ilyocypris biplicata*(Koch, 1838) | Springs, streams, lakes | Permanent or ephemeral | 6–20°(Cryophilic) | 100–2,500 | 0.7–30.0(Freshwater to Ca-rich) | Across North America |
| *Pseudocandona stagnalis*(Sars, 1890) Meisch & Broodbakker, 1993 | Springs, streams, lakes | Permanent or ephemeral | 2–32°(Eurythermic) | 40–2,000 | 0.15–5.0(Freshwater to HCO3-rich) | Western North America: fromCalifornia to southern Nebraska. |
| *Cyclocypris ampla*Furtos, 1933 | Lakes, ponds | Permanent or ephemeral | 2–10°(Cryobiont) | 5–1,500 | 0.1–10.0(Freshwater to HCO3-rich or HCO3-depleted) | Holarctic, mid-to northern latitudes across North America and Asia  |
| *Limnocythere itasca*Cole, 1949 | Lakes, ponds | Permanent | 0–14°(Cryobiont) | 150–1,500 | 0.5–5.0(Freshwater to HCO3-rich) | Across North America |
| *Fabaeformiscandona caudata* (Kaufmann, 1900) | Springs, streams, lakes | Permanent | 6–20°(Cryophilic) | 100–2,500 | 0.7–30.0(Freshwater to HCO3-rich) | Across North America |
| *Fabaeformiscandona acuminata* (Fischer, 1851) | Lakes, ponds (benthic, shallow waters) | Permanent | 6–22°(Mesophilic) | 400–1,000 | 1.0–8.0(Freshwater to HCO3-rich) | Western North America |
| *Eucypris meadensis*Gutentag and Benson 1962 | Springs, streams, lakes | Permanent | 0-14°(Cryobiont) | 400–800 | 1.0–10.0(Freshwater to HCO3-rich) | Across North America but sparse |
| d*Cytherissa lacustris*(G.O. Sars, 1863) | Lakes, ponds | Permanent | 0-18°(Cryobiont) | 10-300 | 0.5-1.0(Freshwater to HCO3-rich or HCO3-depleted) | Worldwide: northern latitudes (Holarctic) |
| f*Paracandona euplectella* (Robertson, 1889) | Peat bogs | Permanent | 0-14°(Cryobiont) | 10-200 | 0.8-2.0(Freshwater to HCO3-rich) | Currently, in the Great Lakes area. Temperate and subarctic Canada and Europe |
| g*Candona* sp. cf. *C. eriensis* Furtos, 1933 | Lake Erie, deep waters, occasionally in shallow rock pools and weedy inlets | Permanent | 0-11°(cryobiont) | ~125 | 0.8(Freshwater to HCO3-rich) | Endemic to Lake Erie, no reports outside except for conferring species, such as pluvial Lake Bonneville, Utah |
| e*Candona* sp. cf. *C. adunca*Lister, 1975 | Lakes, ponds? | permanent | NA | NA | NA | Holarctic, fossil in western North America. Lister (1975) associates this species with *Limnocythere illinoisensis* only know from high latitude lakes (Delorme, 1971) |

a Forester et al. (2005)

b Forester (1991); Anderson et al. (1998); Külköylüoğlu et al. (2007)

c Altnsaçli et al. (2004)

d Bunbury and Gajewski (2009)

e Lister (1975 (endemic and extinct species)

f Iglikowska and Namiotko (2012) and Tibert et al. (2007)

g Average water temperature obtained from the National Weather Service Forecast Office- Buffalo, NY (w2.weather.gov/climate/index.php?wfo=buf; accessd 2/2/18)

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