Why Did Water Strider Mysteriously Disappear from Rural Ponds?

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It is the right season for water strider to mate and spawn in summer. But last summer I did not find any water strider in most ponds in villages of my hometown which had been its habitat. Why did they mysteriously disappear? This study included two parts: First, I carry out field survey. 7 rural ponds were surveyed in different villages. 5 ponds were polluted by the nearby sewage drains which were used as domestic sewage outlet by villagers, where water strider were not found. Second, experiments were conducted. Domestic water pollution were simulated separately with salt, sugar, edible white vinegar, edible alkali, detergent and salad oil, formulated into aqueous solutions of different concentrations in a gradient. Experiments results were that saturated salt solution, saturated sugar solution and 4.0% white vinegar solution did not affect the living of water strider, while water strider could not survive if the concentration of edible alkali solution exceed 2.5%, especially if the concentration of detergent solutions exceed 0.6mg/L (or 0.00006%) which is lethal for water strider. Base on the study, some important conclusions can be drawn: Domestic pollution of rural ponds, especial detergent pollution is one major reason for the disappearance of water strider. Water strider can be considered as one kind of bio-indicator for domestic pollution of small water body in countryside. Detergent, as a kind of anionic surfactant, should not be up to 0.3mg/L in China National Water Quality Standard V. And anionic surfactant concentration must be higher than 0.6mg/L in the water bodies if water strider could not survive. Thus, the 5 ponds without water strider are substandard under the national water quality standard V.

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