1023-35-1063   **XB Hu** and **CX Li*** (`cxli@math.tsinghua.edu.cn`), Department of Mathematical Sciences, Tsinghua University, Beijing, 100084, Peoples Rep of China, and **JJC Nimmo**. *On an integrable symmetric $(2+1)$-dimensional Lotka-Volterra equation and the corresponding modified $(2+1)$-dimensional Lotka-Volterra equation.*

A symmetric (2+1)-dimensional Lotka-Volterra(LV) equation is proposed, which is a strong generalization of the famous Lotka-Volterra equation. From the viewpoint of bilinear method, a bilinear Bäcklund transformation for the high-dimensional LV equation in bilinear form is found and then the corresponding Lax pair is derived. DKP-type pfaffian solutions are presented. As special cases of the pfaffian solutions, we obtain soliton solutions and dromions. Moreover, taking the Bäcklund transformation as a new soliton equation, the $(2+1)$-dimensional modified Lotka-Volterra equation is considered. It is a semi-discrete system, having discrete space and continuous time which has a known $(1+1)$-dimensional self-dual network equation as a reduction. In the same way, its bilinear Bäcklund transformation and Lax pair are presented and explicit solutions including soliton solutions expressed in terms of pfaffians are obtained. (Received September 24, 2006)