

Positive solutions to a nonlinear nonlocal elliptic system arising in desertification

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We prove existence (and multiplicity in some cases) of positive solutions to a nonlinear nonlocal 3×3 elliptic system arising in desertification theory. We study the full system and several local simplified versions reducing the problem to 2×2 systems, and even one single equation. For the proofs of existence, we use sub- and supersolutions and Schauder's Fixed Point Theorem.