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Water Quality & Natural Resource Management on Military Training Lands in Central Texas: Improved Decision Support via Bayesian Networks

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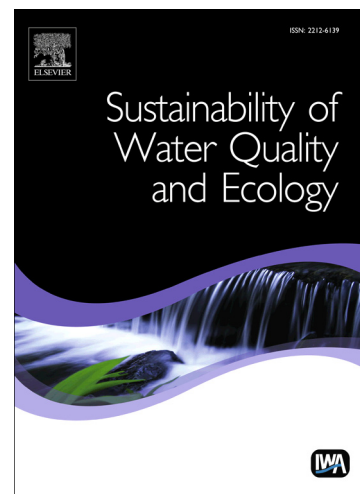
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1 **Title:** Water Quality & Natural Resource Management on Military Training Lands in
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11

12 **Abstract**

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14 The conservation and management of military training lands has long evolved
15 around the unique criteria for maintaining a viable fighting force. In lieu of this primary
16 mission, landscapes have often experienced accelerated degradation and loss of
17 structural and functional capabilities for providing desired ecosystem services (including
18 the basic training mission). In an effort to aid military land managers as well as anyone
19 who makes and implements decisions for natural resource management; we support an
20 innovative approach towards the integration of evidence and the application of
21 diagnosis and prognosis for the decision-making process through the use of Bayesian
22 Networks. Illustrated below is an example for utilizing Bayesian Networks in the
23 decision support process. We utilized data and experience from ongoing efforts at the
24 Fort Hood Military Installation to build the initial network; then integrate expert input from
25 authors and engineers in propagating the node relationships. Through this approach,
26 we demonstrate how military land managers can integrate varying streams of evidence,
27 including empirical, model generated or expert opinion, into a network for decision
28 support. The example below is developed based upon land management issues within
29 the U.S. Army, but the process can be adapted and implemented across most all
30 ecosystems under some form of land management.

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