INTISARI

Perbuatan merusak dan menghancurkan lahan gambut hampir 90% dilakukan manusia dengan maksud dan tujuanalih fungsi lahan menjadi lahan budidaya, pertanian, dan perkebunan, sehingga pembukaan lahan gambut terus dilakukan masyarakat untuk memenuhi hak mendasar kelangsungan hidup mencari nafkah, berburu, bercocok tanam, dan lain sebagainya. Kenyataannya banyak dijumpai area lahan gambut telah beralih fungsi secara luas menjadi lahan budidaya dan perkebunan kelapa sawit. Alasannyauntuk memenuhi tuntutan pasar dan akibat tekanan global permintaan minyak kelapa sawit yang tumbuh rentan diataslahan gambut.Alih fungsi lahan gambut berisiko terhadap kerusakan lingkungan dan banyak lahan kehilangan karbon, rentan terhadap risiko bencana hidrometeorologi. Proteksi melalui antisipasi kedepan setidaknya suatu wilayah diproyeksikan memilikikonsep ketahanan wilayah terhadap perubahan iklim dan perencanaan konservasi. Salah satu analisis alternatif yang digunakan untuk pemantauan lahan gambut adalah pengembangan pemodelan identifikasi spesies spesifik vegetasi endemik yang menjadi tujuan dalam penelitian ini dan diprediksi sebagai indikator suksesi restorasi lahan gambut tropis pasca kebakaran sepertisemak, pakis, belukar, dan herbal. Spesies ini merupakan kelompok spesies spesifik vegetasi perintislahan gambut yang sebarannya diidentifikasi melalui pengembangan pemodelanalgoritma WANNdan citraHyMap. Pemodelan yang dikembangkanhasil kombinasi gabungan metode hibridantara *wavelet* dan *artificial neural networks*disingkat WANN. Hasil penelitian ditemukan 3 spesies vegetasi: Tumih/Parepat, Meranti, dan Jelutung yang dapat diidentifikasi sebarannya. Luarannya peta hasil WANN mengenali fitur-fitur dan letak posisi kelompokspesiesspesifik vegetasi, berdasarkan performansi *mean square error*(MSE), komputasi iterasi program komputer yang mencapainilai 0.0837 dan0.0547, sedikit lebih rendah saatproses pengolahan data pelatihanmetodeANN.Implikasi temuan pemodelan ini akan mempermudah analisis spasial dan menjadikan dasar pengolahan citra dalam menentukan lokasi titik obyek spesies spesifik vegetasi berdasarkan keyakinan pengenalan pola fitur *spectral signature*vegetasi dan histogram tanpa harus kelapangankemudianmerekomendasikankepada pengambilan keputusan.

Kata kunci: Spesiesspesifik vegetasi,Pemodelanhybrid,Pembelajaran mesin.

ABSTRACT

Damaging and destroying peatlands is 99% done by humans with a variety of purposes and objectives, the conversion of land functions into cultivation, agriculture, and plantation land, so that peatland clearing continues to be carried out by the community to fulfill the fundamental rights of survival in earning a living, hunting, farming , and so forth. In fact, it is often found that peatlands have been widely converted into cultivation and oil palm plantations. The reason is to meet market demands and due to global pressure on demand for palm oil that grows vulnerable on peatlands. Conversion of peatland functions poses a risk to environmental damage and a lot of carbon loss land, vulnerable to the risk of hydrometeorological disasters. Protection through anticipation going forward at least an area is projected to have the concept of regional resilience to climate change and conservation planning. One alternative analysis used for peatland monitoring is the development of modeling of identification of specific species of endemic vegetation that are the objectives of this study and are predicted as indicators of succession in post-fire tropical peatland restoration such as shrubs, ferns, shrubs and herbs. This species is a specific group of peatland pioneering vegetation species whose distribution is identified through the development of modeling through Artificial intelligence (AI) and HyMap imagery. Modeling is developed by a combination of hybrid wavelet methods and artificial neural networks or WANN. The study found 3 species of vegetation: Tumih / Parepat, Meranti, and Jelutung were identified based on their distribution. WANN map output can recognize features and position of specific species of vegetation, based on the performance of mean square error (MSE), the iteration process of machine learning computation reaches values of 0.0837 and 0.0547, slightly lower when processing training data in ANN. The implication of this modeling finding facilitates spatial analysis and can recognize through the introduction of patterns of distribution of vegetation species based on vegetation signature spectral features and histograms that can be used as a reference for the interpretation of other image processing interpretations to be recommended to decision makers.

Keywords: Peatlands, Peat vegetation species, Machine learning.