

The Management of Isolated Environments: Developing a Field-Based Data Collection System for Forest Management in New South Wales.

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SUMMARY

The Forestry Corporation of NSW has been managing environmental sustainability, tourism and renewable timber production in NSW's State-owned commercial native and plantation State forests for more than a century. Environmental conservation and community recreation are balanced with timber production and access for other primary industries such as grazing and beekeeping to ensure that the forests sustainably deliver multiple benefits to the community for the long term.

The development of a field based data collection system has allowed management of forest related assets in remote areas where a direct connection to the organisation's data storage network is not possible.

With about two million hectares of plantation and native forest under management, the Forestry Corporation required a robust solution that was suitable for data collection and attribute management in isolated areas with minimal or non-existent mobile phone network coverage.

Additional requirements included the ability to work offline using a portable device suitable to be carried safely in the field, whilst also being flexible in use independent of location. Feedback from potential users required the development of individual task based modules to undertake regular functions in the fields of pest management, fire prevention and containment, management of flora and fauna, and site based planning for harvesting and re-establishment operations.

Several options were investigated for platform and operating system stability, with future development maintenance and integration into existing networks and databases also assessed for compatibility. Data transfer mechanisms investigated included those with direct and indirect network connections, with the ongoing maintenance of temporary storage platforms also

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considered.

The development of the FcMapApp has enabled the Forestry Corporation to integrate field based data collection activities with existing forest management operations whilst also providing a sound basis for tactical and strategic planning. Task based modules have allowed activities in key areas e.g. personnel safety, fire and pest management, to be conducted with minimal delay in data integration.

The FcMapApp was developed primarily in-house for use on an Apple platform with integration suitable for use in an Esri Arcmap multi-user environment. Primary data elements consist of vector geodatabases and raster tile packages, and can be transferred to the user through direct and indirect mechanisms. Data synchronisation elements allow the changes made by the user to be integrated into the source datasets whenever the user is within range of the preferred mobile phone network. Future developments include the capacity to accommodate vector tile packages, supplementary reference datasets, and the creation of additional task based modules.

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