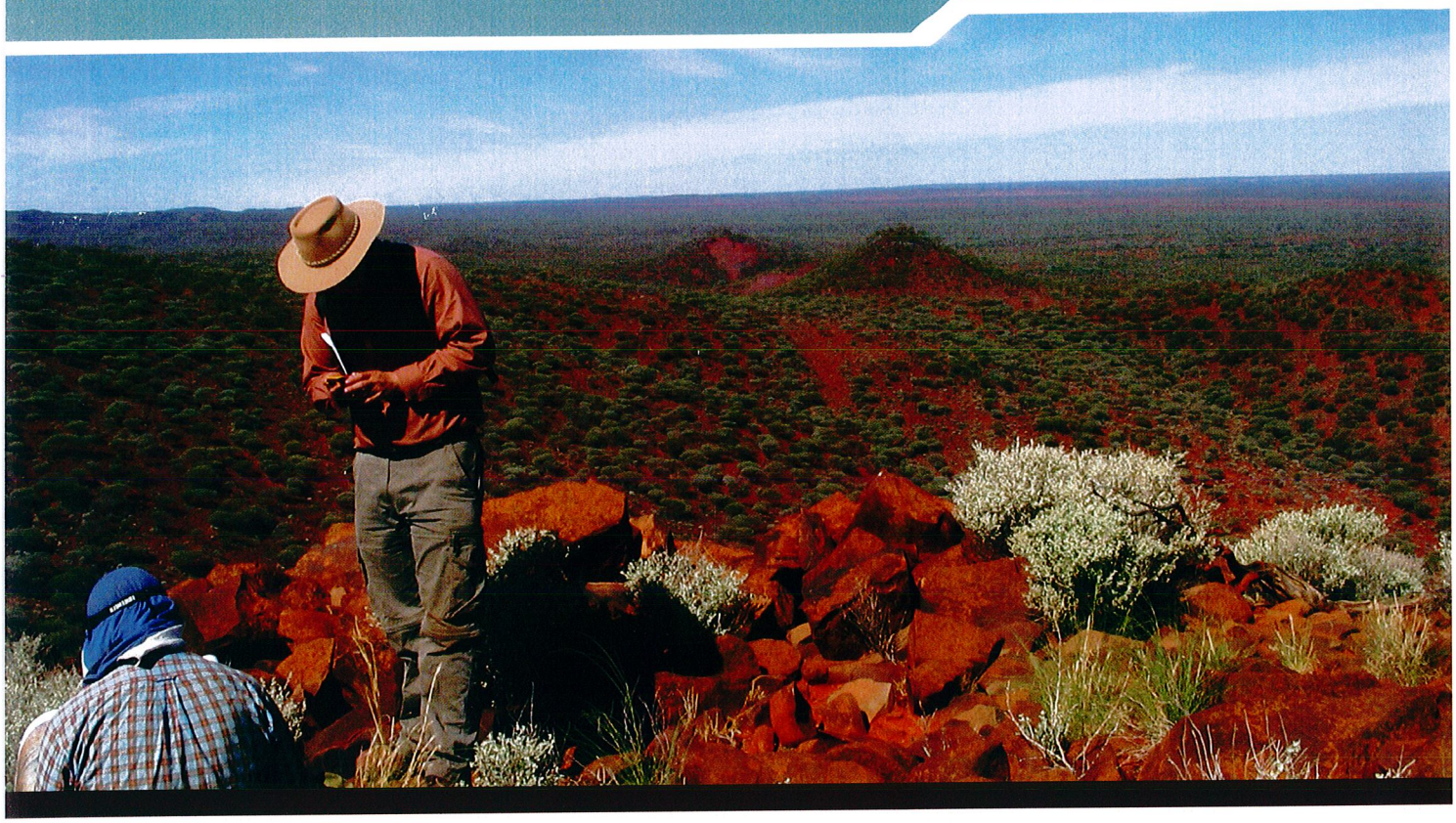
REPORT



A CRITIQUE OF THE

"Strategic Review of the Banded Iron Formation Ranges of the Midwest and Goldfields, related correspondence and other relevant environmental assessment documents."

By Dr Syd Shea - Environmental and Natural Resource Management Consultants Pty Ltd

Prepared for
The Geraldton Iron Ore Alliance - June 2008

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I. Introduction

Environmental and Natural Resource Management Consultants Pty Ltd (ENRMC) was commissioned by the Geraldton Iron Ore Alliance (GIOA) to critique the Strategic Review of the Banded Iron Formation Ranges of the Midwest and Goldfields and related correspondence and environment assessments.

In preparing this report, ENRMC noted the GIOA had previously recorded its appreciation of the considerable effort made by the Western Australian Government and Government agencies to "give industry greater certainty, while providing the Environmental Protection Authority (EPA) with clear guidelines about the economic and environmental objectives the State Government wants to achieve"(Ministerial Press Statement 24-Oct-2007) by the publication of the Strategic Review of the Banded Iron Formation Ranges of the Midwest and Goldfields (Strategic Review), (DoIR/DEC, 2007). There are, however, significant elements of the Strategic Review (and previous EPA assessments and policy statements) which cause concern to member companies of the GIOA. It is possible that these concerns are caused by varying interpretations of critical parts of the Strategic Review.

The following critique identifies these uncertainties and suggests ways by which the mining industry can develop a more constructive relationship with the Government and its agencies in the areas of environmental assessment and conservation management in the Midwest region.

II. Legislative Impedance to the Adoption of a Regional Approach to Conservation and Mining in the Midwest

The Strategic Review acknowledges that the Environmental Protection Act 1986 constrains the EPA to "assessing only the environmental aspects of proposals placed before it and, traditionally, such proposals are assessed on a project by project basis. Any assessment, strategic or other wise, based on wider principles of sustainability or 'the triple bottom line' of environmental, economic and social costs and benefits, is the role of government."(P.2 Strategic Review).

The Executive Summary of the Strategic Review, which has been endorsed by the State Government, also acknowledges "That a project by project assessment does not allow effective policies or strategies to be pursued." (P.5 Strategic Review)

The GIOA accepts a regional approach is logical but also believes that such an approach should provide greater flexibility in the environmental assessment process and ensure long term positive conservation outcomes in the Midwest.

ENRMC (and GIOA) assert that the environment of the region is being significantly impacted upon by ecological threatening processes, which if not managed will result in negative medium and long term outcomes, regardless of any mining activity in the region.

Even the most stringent environmental conditions placed on mining will not alter this situation.

This is because the ecological threatening processes (goats, foxes, cats, sheep, cattle, wild dogs, exotic plants and uncontrolled wild fire) would remain as the major agents impacting rangeland ecosystems including the Banded Iron Formation (BIF) ranges.

It is estimated that 2,700 square km of the Gascoyne and Murchison catchments are severely degraded. (Brandis. 2005).

The impact of grazing is not restricted to the plains. Acacia ungicula is one of the few plant species listed in the Western Australian Rangelands under the Commonwealth Environment Protection and Biodiversity Conservation Act as critically endangered. (Department of Environment Water and Heritage-Species Profile and Threats Database-2008). This species is listed as critically endangered and the threatening processes are documented as "feral goats and wildfire". In the "Threat Abatement and Recovery" program it is recorded: "Pastoralists have carried out two musters for goats in 2001-2002 removing 4100 goats. In December 2001 a survey estimated 10000 sheep and 10000 goats concentrated on the sensitive ranges due to the presence of natural springs". This is a classic example of the uncontrolled damage being done by feral and introduced animals in the region. The visual impact of uncontrolled goat and sheep grazing in the rangelands is illustrated in Figs 1 to 3.

The Department of Environment and Conservation (DEC) has recorded the dramatic impact of the introduced fox and cat on a wide range of fauna and invertebrates throughout the State including the Mid West rangelands. The recent publication in the autumn edition of Landscope -"Controlling feral animals in the rangelands" (Richards and Algar, 2008) highlights the major role of feral animals in the decimation of native fauna and the potential to achieve major restoration "of small mammals, reptiles, birds and invertebrates by broad scale (regional) baiting." This potential has been realised as a result of the Department's excellent feral animal research program.

DEC has already applied the results of research into control of feral animals over more than 3 million hectares of National Parks and State Forests in the South West of Western Australia for more than 12 years. The success of this program is demonstrated by the dramatic increase in the population levels of mammals in the south west forests following fox baiting. (See Fig.4).

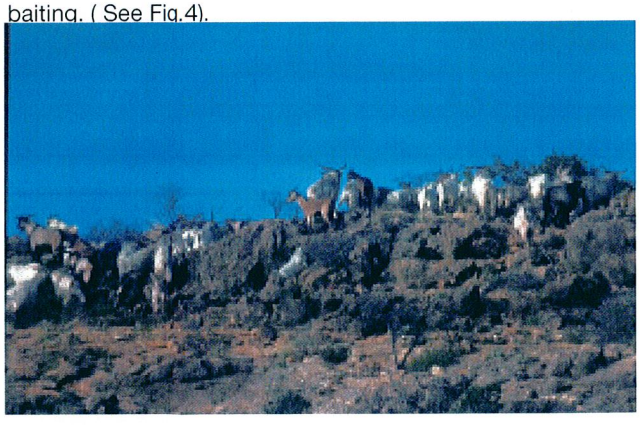

Fig. 1.Goats grazing on outcrops in the Midwest rangelands

Fig.2 Impact of severe grazing at water point in the rangelands

Fig. 3 Demonstration of the dramatic effect of fencing which excludes grazing from introduced animals.

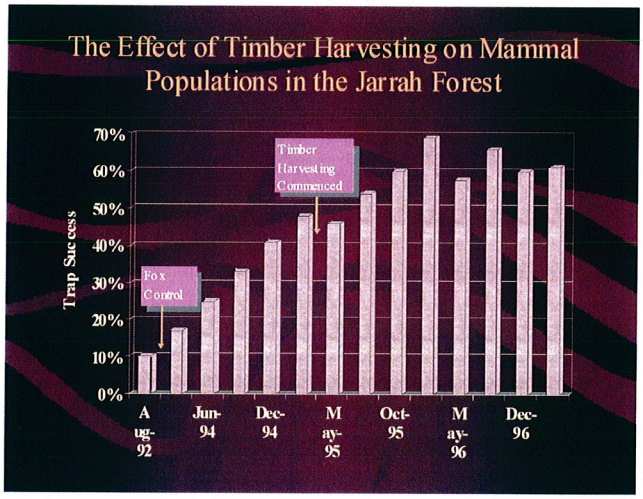

Fig.4. The Effect of Timber Harvesting on Mammal Populations in the Jarrah Forest

The GIOA has acknowledged that it would be difficult to bring about changes to legislation which allows the EPA to formally place individual projects in a regional context, within a reasonable time frame, and that there may be political difficulties in achieving such changes. Even if the EPA is constrained by legislation, however, there is no constraint on the Government taking into consideration, through the appeals and Ministerial decision process, the regional environmental context when it makes its final decisions on a BIF project.

While the Strategic Review and the EPA have focussed on the cumulative impacts of BIF projects on the environment, the GIOA would submit that a regional approach to conservation of biota in the rangelands would result in significantly better net environmental outcomes for the region and sub-regions. For example:

- Documentation of conservation assets and mineral prospectivity values on a regional basis will allow a more comprehensive, integrated and accurate data basis in the Mid West which will enable decisions made at the Ministerial or the Appeals phase of the assessment process to be made on a sound, scientific basis. Many of the more recent concepts in the environmental assessment and reserve creation process were derived from the processes that were developed by the then Department of Conservation and Land Management in cooperation with the Australian Heritage Commission in Western Australia in the 1990s in response to the need to reconcile the conflict over use and conservation of forests. The adoption of a regional assessment process in the south west forests led to the elimination of conflict between the Commonwealth and State Agency and a major improvement in the efficiency and effectiveness of the environmental assessment process. The maps below (Figs. 5 to 10) of an area centred on Walpole on the south coast, illustrate how useful the documentation of a variety of conservation and resource values in a regional context are in the process of reconciling conflicting land uses.
- There is a significant amount of scientific documentation of the diversity of conservation values, landscapes, mineral prospectivity, scenic areas and other attributes which need to be considered to allow conservation management and environmental assessment of mineral projects to be placed in a regional or sub-regional context. While there is exchange of data between companies and the DEC, there is no process in place which puts this data into a regional context. There are obvious opportunities for saving expenditure on conservation assets in situations where a species is designated rare in a project area but in a regional assessment is found to be relatively abundant. For example, in one impact assessment of a BIF project, consideration of three Malleefowl nests was a significant part of the assessment process. But it is quite possible that outside the project assessment area there are numerous nests which, if they were present, would change the significance of the three nests that were part of the single project assessment. Even if a regional survey showed low populations of Malleefowl, the DEC has demonstrated that it is possible to translocate Malleefowl (as undertaken at Point Peron on the Shark Bay peninsula). DEC has successfully translocated a number of species to areas where fox populations have been reduced. This is an example of how the combined resources of Government agencies and GIOA companies, if coordinated, could work cooperatively to increase the net environmental benefit at a lower cost than the costs incurred by a single project strategy.

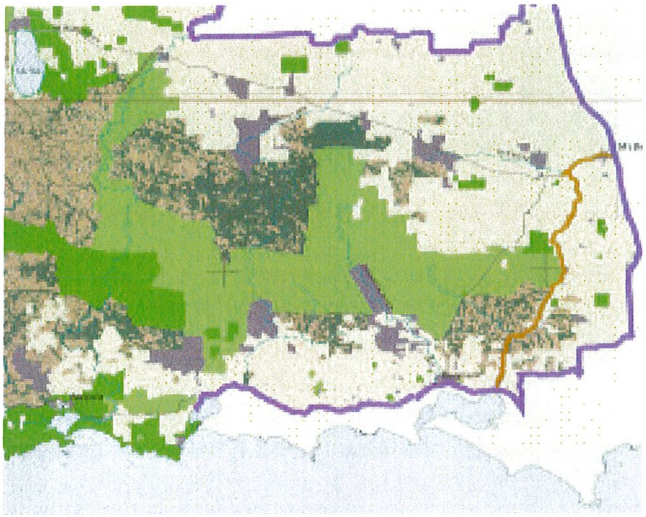

Fig.5. Tenure in target planning area

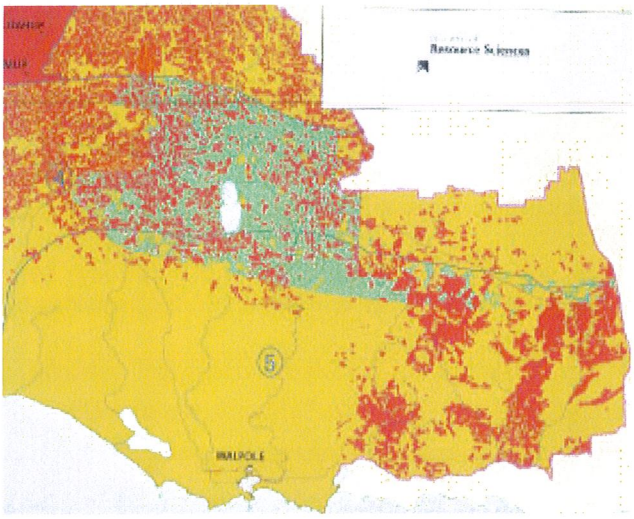

Fig.8.Location of areas of potential mineral prospectively in planning area.

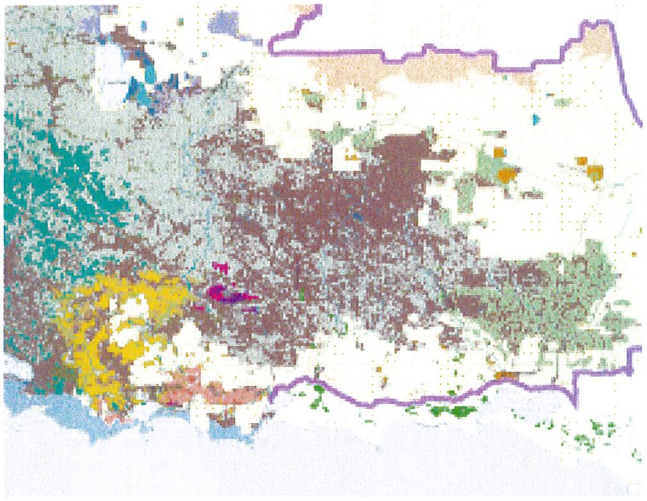

Fig. 6. Location of different forest ecosystems in planning area

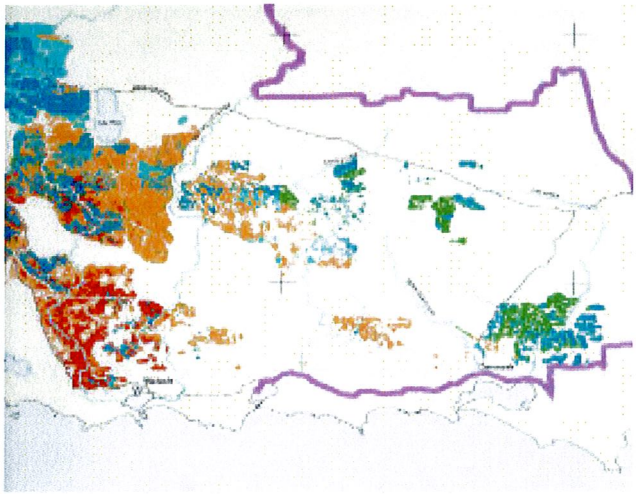

Fig.9.Location of areas with timber production potential in planning area.

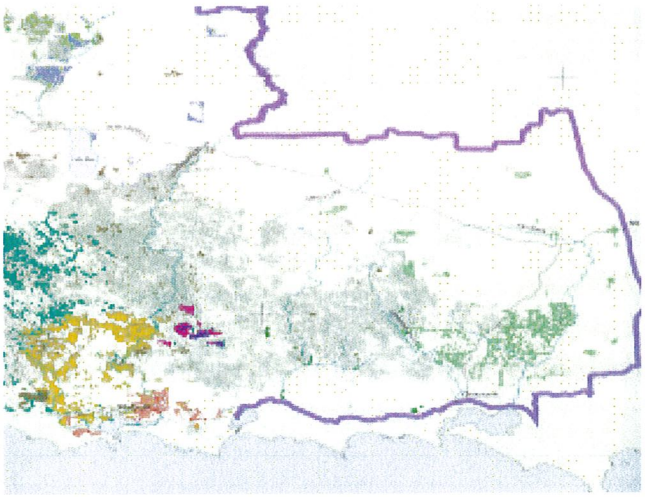

Fig.7.Location of old growth forest in planning area

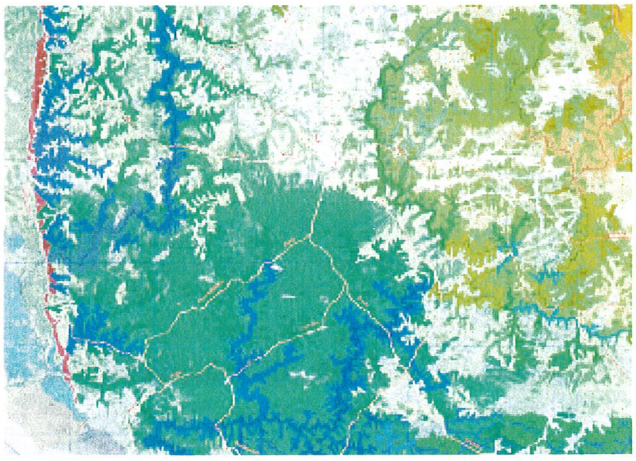

Fig.10 Location of different vegetation communities in planning area

- If the assessment of a BIF project could be made with the knowledge that the threatening processes, which exist on a regional basis, were controlled through a cooperative conservation management program, there would be far greater surety to both government and the proponent that the conservation values of an area would be preserved. The GIOA has indicated it is aware of the excellent conservation management initiatives by the DEC to control feral animals such as goats, foxes and cats in some regions of the State and the significant conservation benefits that have been achieved, but it is obvious that the DEC is constrained by inadequate funding.
- A regional approach to environmental impact assessment would also provide the basis for an adequate and representative reserve system with the best balance between conservation and resource use.
- A regional approach to environmental assessment and conservation management would reassure proponents and the community that the current irrationality of a system, which involves large expenditures on environmental assessment and conservation management of a miniscule area of the Midwest rangelands (i.e. limited to the site of mining), surrounded by a massive area of environmental degradation, has been recognised and is being addressed. For example a member company of the GIOA has expended $180,000 on surveys and genetic analysis of one spider.

Under current environmental assessment processes, it is normally not the practice of the EPA to consider environmental outcomes outside the project area being assessed, although requirements to assess "cumulative effects 'of projects suggests that it is possible for them to do so. It is difficult to understand why exclusion of the positive environmental benefits of a regional approach, which would not occur without the presence of mining projects, is not considered in the assessment process. In effect, the numerous potential environmental benefits of a regional approach in the rangelands, when taken cumulatively, are a major environmental "offset". A cooperative regional approach has the potential to reduce costs while at the same time increasing the net environmental benefits.

The Author has confirmed that the GIOA is prepared to discuss the potential for a pilot regional planning initiative to be undertaken in cooperation with Government and other appropriate parties, with the view to contributing to the implementation of essential regional management procedures in appropriate areas. Fig. 11 is an example of an area that could be used as a pilot regional planning project. With a cooperative, integrated approach between GIOA member companies and government this area may be even further expanded.

A regional pilot planning initiative could for example investigate the practicality and cost of controlling major threatening agents such as goats (by fencing and a systematic eradication program within the regional area), the control of cats, wild dogs and foxes (using the new baiting techniques developed by DEC) destocking of sheep and investigations of systems to control wild fire.)

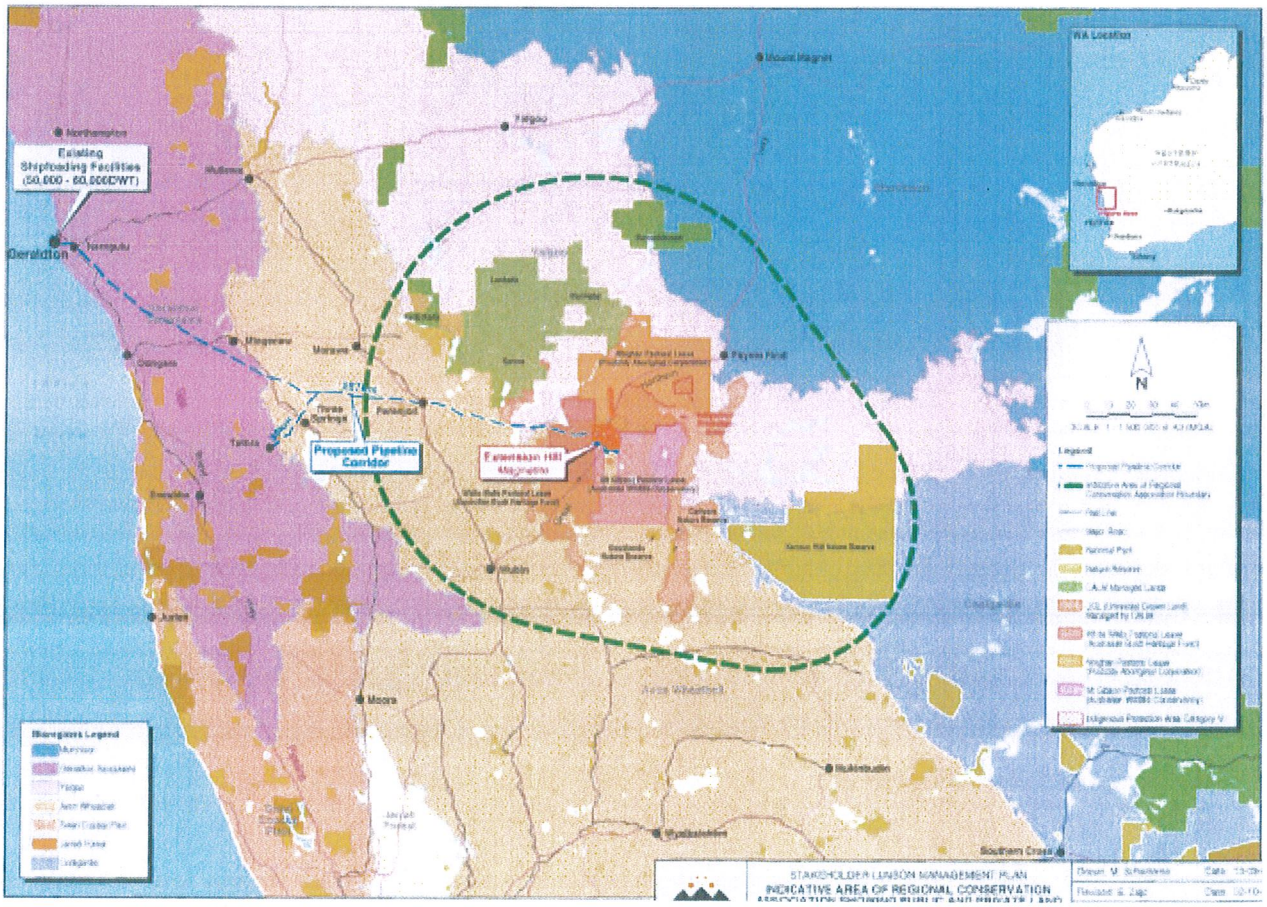

Fig. 11 Map of potential regional area which could be used for a pilot regional planning project which includes a number of mining projects and a number of tenures held by the Government and private organisations.

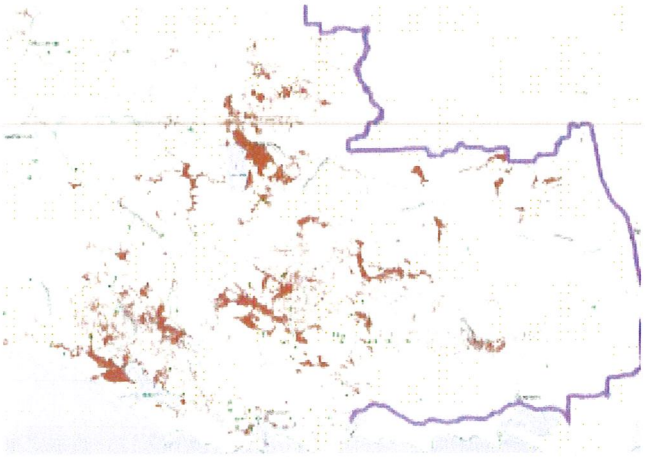

Fig.12. Location of areas suitable for fauna habitat in planning area

III. Irrevocable Reservations

The GIOA has indicated it understands the philosophy that some guidance is given to industry as to the areas that are of high conservation value and therefore the Government would be unlikely to be predisposed to approving mining operations in these areas. It does not agree, however, that "unless appropriate guidance is in place there is a high probability that, over time, none of the most outstanding range systems and very few of the remainder will be reserved intact" (Strategic Review p.5). A reciprocal observation could be made about the ability to undertake any mining at all in BIFs within the rangelands, if the recommendations of the Strategic Review were interpreted literally.

The GIOA has also indicated its concern with the recommendation to advocate areas for immediate reservation as A Class Nature Reserves or National Parks before there are comprehensive biological surveys to determine if the proposed areas have unique biota. A recent example of reservation recommendations being made on the basis of inadequate biological surveys is demonstrated in EPA Bulletin 1242 (November 2006).

In the Bulletin the EPA states with respect to two plant species (Lepidosperma gibsonii and Darwinia masonii):

- Both plant species and the vegetation are unique to the Mt Gibson Ranges. Current estimates indicate that 15 % of Darwinia masonii and 47% of Lepidosperma sp. Mt. Gibson would be impacted by the proposal" (EPA Bulletin 1242 p ii).
- "4. That the Minister notes that the EPA has concluded that the proposal should only proceed if: prior to ground disturbing activities, the remaining ridges of BIFs in the Mt Gibson area that contain sub-populations or suitable habitat for Lepidosperma sp. and Darwinia masonii Mt. Gibson and habitat for the remaining restricted floristic communities are secured in the formal conservation estates as an ' A' Class Nature Reserve."(Bulletin 1242 p. IV).
- "5. That the Minister notes that the EPA has concluded that the proposal should not be implemented if the two species cannot be secured in the formal conservation estate." (Bulletin 1242).

In the Strategic Review (p.40) it states, for example, at Mt.Gibson, "two threatened species, Darwinia masonii and the newly discovered Lepidosperma sp. Mt.Gibson are only found on the upper slopes, crests and ridges of Mount Gibson Ranges."

Subsequent to the publication of this report there have been surveys which have confirmed a very significant increase in the distribution and numbers of the newly identified Lepidosperma gibsonii. In the EPA report, the sections dealing with this species were based on the assumption that there were 17,618 plants all located on the BIF. The recent data (see Fig 13 below) indicates there are at least 45,013 plants many of which are not located on the BIFs.

It is acknowledged that there are situations where extensive surveys have been carried out and it has not been possible to locate species other than in the project area. (For example, in the case of Tetratheca paynterae this species was affected by the Koolyanobbing Project). The example above does illustrate, however, the need to provide sufficient time and resources to confirm the distribution of biota before irrevocable reservations are made.

There are a plethora of recommendations in the Strategic Review, the EPA, and Government agencies reports that require A Class reservation as a condition of approval before a project can proceed. For example ..."Unless appropriate guidance is in place there is a very high probability that, over time, none of the most outstanding range systems and very few of the remainder will be preserved intact . At present, of the 28 BIF ranges discussed in the review, two are in conservation parks and three are in former pastoral leases purchased for conservation but not yet reserved. None are in National Parks or A Class Nature Reserves which offer the highest level of conservation security and protection from mining (i.e. Parliamentary approval required)" .(Strategic Review P.5)

The demands for irrevocable reservation, without any consideration of interim processes that preserve options, suggests that there is a lack of confidence that government legislative frameworks provide for sensible and balanced reservation decisions to emerge over time.

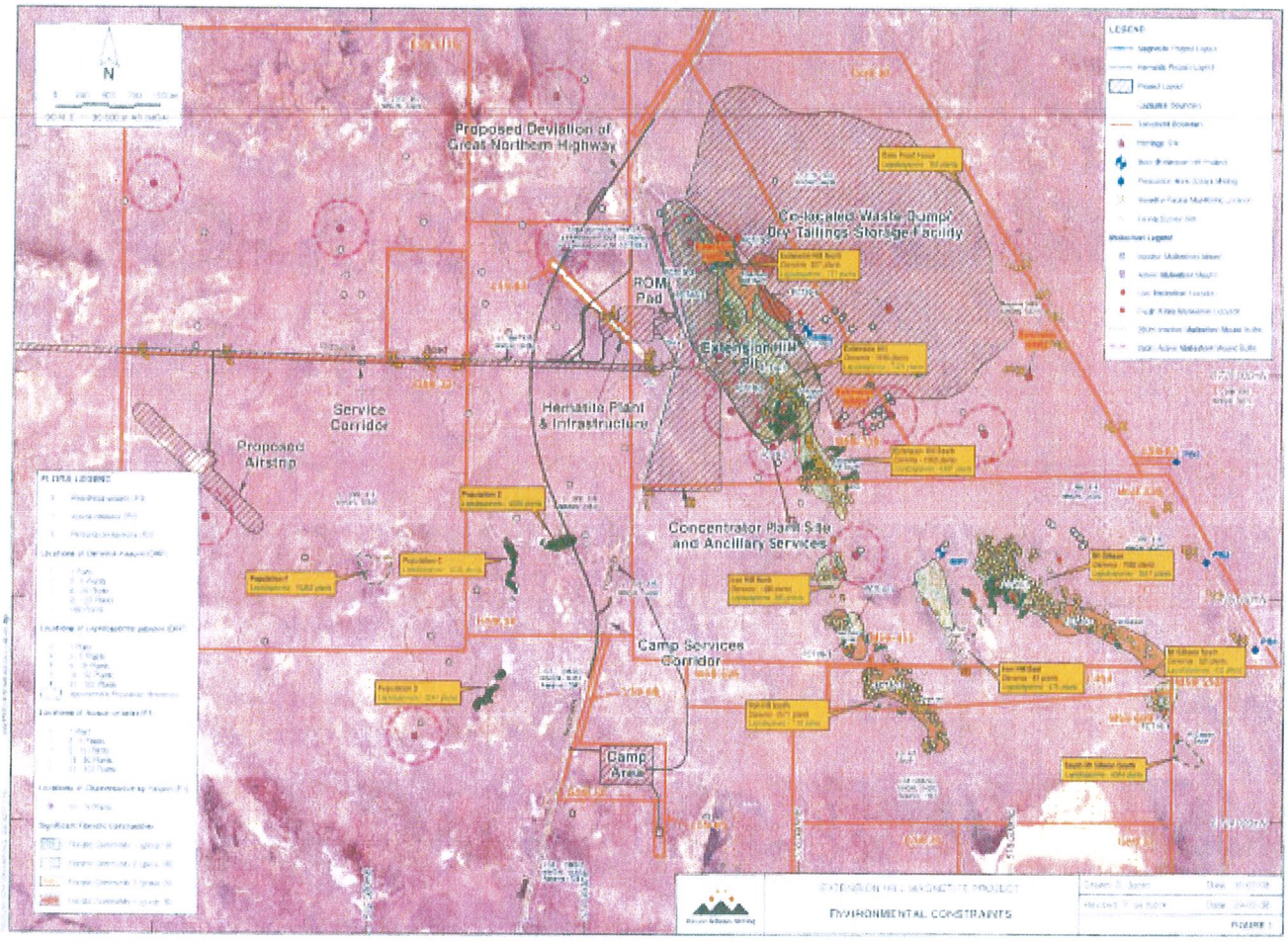

Fig.13.Distribution of Lepidosperma gibsonii.

The GIOA has noted that it is proposed that the pastoral lands acquired by the Government for reservation will be "unclassified Conservation Parks" (D.E.C. Fact Sheet 20 September 2007). It is appreciated that this classification does not exclude mining and is not subject to Parliamentary approval, but the reality is that any area designated by Government as a Conservation Park, that is subject to an application to mine, will face intense and acrimonious opposition from some sections of the community.

The GIOA has further submitted that where there is considerable uncertainty about either conservation values or mineral resource in an area of land, a classification system should be devised that minimises public concern if the conservation status of the area legitimately changes.

In areas where the State Government is considering reserves and mineral prospectivity has not been established, the GIOA would like to explore with Government and the EPA legal and /or legislative mechanisms which prevent mining until adequate evaluation of both the environmental values and the mineral development potential can be undertaken. This approach provides the confidence to all parties that the conservation values can be properly assessed and the status of mineral resources correctly established. For example, it may be possible by a combination of reservation under the IUCN category VI ("VI. Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems") and legally binding agreements to achieve this.

IV. Interpretation of "Key Principles and Guidance"

(Government Endorsed Executive Summary and Actions Arising Strategic Review p.9-10)

There has been considerable concern and confusion about interpretation and application of this section of the Strategic Review by members of the GIOA.

It is appreciated that Minister Logan's letter (April 7 2008) attempted to clarify these issues but the GIOA remains concerned about:

- The fact that the Key Principles and Guidance apply generally is of concern because it is in the GIOA's view a significant increase in the "environmental bar". There is a particular concern that the projects which have been approved but are staged, will now be subject to higher levels of environmental assessment which, if they had been in place at the beginning of the project, could have caused reassessment of their viability.
- The greatest concern that the GIOA has indicated is with the words 'Key Principles' and the principles set out. There is no desire to be semantic but a principle is a fundamental prerequisite condition where as Guidance allows flexibility. It is not unreasonable to conclude that Ministers would be bound by a principle that has been endorsed by Government as well as members of Government Agencies.
- Unfortunately Minister Logan's letter does not help to clarify the key issue. For example the following statement.....

"With regard to the discretion that Government agencies and Ministers may apply in relation to approval of projects that result in an increased International Union for the Conservation of Nature and Natural Resources (IUCN) threat categories, the Strategic Review states that the "conservation principles and guidance should be taken into account". The intent of this language is clear in that this factor should be considered in any evaluation of environmental impacts. It is not considered that the wording is open to misinterpretation.'

This statement indicates that the principles and guidance "should be taken into account" suggesting that there is some flexibility for the EPA and DEC when they are applying the principles. But in the same letter it is stated in the following paragraph....

'Approval and advisory authorities would always look at the merits of any case in relation to statutory requirements. It would be inappropriate, however, for a Government agency with direct statutory obligations to conserve species to provide advice supporting impacts that would significantly worsen either directly or indirectly or through cumulative impacts the threat status of a species.'

Given that the Government has endorsed the **Key** (author emphasis) Principles the GIOA believes the Agencies (which proposed them) are obliged to apply these principles when making recommendation to Government. In fact the EPA Act prescribes that the EPA can only consider environmental factors in the assessment process and therefore must use these principles as the minimal basis for impact assessment recommendations.

The GIOA has advised it appreciates that...

'The Government will make its decision taking into account economic and social needs as well as environmental factors in the interests of the Western Australian community .This has been clearly demonstrated in Government decisions on previous mining proposals.'

However it appears to the GIOA that by adopting the Principles the government has established a setting that shall make it extremely difficult to support projects even where very high social and economic outcomes can be achieved, if there is perceived significant environmental impact.

V. Implications of the application of the "Key Principles" to The Development of the Midwest Mining Province

If the key principles are strictly applied by the DEC and the EPA, (and as explained above it is difficult to not conclude that both agencies have no option but to apply them literally), it is possible that the majority if not all of the projects listed in the Strategic Review (including the projects the Government has indicate it is "predisposed towards") would fail on the requirements to meet the Principles (i) and (ii) and the Guidance (v.).

Each of the Principles are discussed below.

Implications of Principle (i): The Strategic Review has documented a number of flora which are listed on BIFs that are proposed to be mined. If the constraints on translocation that are documented in the Strategic Review are applied it is possible that a number of BIF projects will fail to meet the requirements of Principle (i) and Guidance (v) and consequently it is difficult to see that the government will not be presented with a recommendation from the EPA that crucial projects should not proceed.

On the basis of the evidence from the surveys conducted so far, fauna will fall into categories (i) or (v). The GIOA has contended that any impact of mining development on the BIFs on fauna would be insignificant compared to the effect of existing threatening processes. It is noted that some invertebrates are being evaluated which may fail to meet the key principles threshold. Given the large number of invertebrates that are likely to be present, the inclusion of broad scale assessment of invertebrates will at the minimum cause long delays in the assessment process and large increases in expenditure.

Implications of Principle (ii): The GIOA has expressed concern about this principle because it believes that a rigid application of the concept of floristic communities could result in many significant BIF projects being subject to a recommendation from the EPA that they not proceed.

These concerns are documented below:

- The GIOA acknowledges that there is an underlying scientifically based rationale for consideration of 'ecological communities' including 'floristic communities' in specific cases where the ecological processes which only exist in the defined community are essential for the maintenance of individual species existence. It is noted however that while the Commonwealth has legislation which recognises 'ecological communities' there is no legislative basis in Western Australia for 'ecological communities' and consequently no legal definition of them.
- A valid reason for conserving "Ecological or Floristic Communities' is that they contain unique ecological processes that are essential for the preservation of bio-diversity. It is a fact that such communities have been identified in Australia but there is no evidence that there are many or any "floristic communities" on Midwest BIFs' at the scale they are being defined, that have been shown to contain such unique ecological processes. It can only be concluded that "floristic communities" are being used as a surrogate for ecological processes as a means to preserve unidentified species (in particular invertebrates).
  It is stated in the Strategic Review "Floristic communities are described where the flora values are the main values to be protected...". But this appears incorrect based on DEC documents which state... "Because ecosystems and the links between their community members are so complex, it is impossible to maintain their components on a species by species basis. While it is important to manage individual threatened species of animals and plants, we cannot give the same individual attention as we do to vertebrates and vascular plants to the many thousands of species of invertebrates, non-vascular plants and micro-organisms. To conserve these components of biological diversity, we need to identify, maintain and manage whole ecosystems, their processes and communities. Further, it is more cost-effective and efficient to prevent species becoming threatened by conserving them as part of viable, functioning communities than it is to attempt to manage species on a species by species basis."(Extract from Nature Base - Endangered Ecological Communities).
- The definition of what is an "ecological or floristic community' is confusing because it varies in different legislation and scientific documents. It is not surprising that members of the community have had some difficulty grasping what an ecological community is. The Commonwealth Governments "Threatened Species Scientific Committee, in a paper to the Commonwealth Minister in 2004 stated, "Problems of particular concern to the Committee have been associated with defining an "ecological community" in practical terms within the landscape." (Department of Environment and Heritage-Advice for the Minister for Environment and Heritage, September 2004). The Commonwealth legislation definition is not helpful. The legal definition of an ecological community in the federal EPBC Act is... "an assemblage of native species that: inhabits particular area in nature: and (b) meets the additional criteria specified in the regulations (if any) made for the purposes of this definition."
- The current definitions used by DEC are:
  - "A naturally occurring biological assemblage that occurs in a particular type of habitat, NOTE: The scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified." (DEC Nature Base - Alphabetical Glossary of Terms used in Nature Base.)
  - "A naturally occurring biological assemblage that occurs in a particular type of habitat. Ecological communities may be described on the basis of flora, fauna, or other types of biota. Floristic communities are a way of doing this where the flora values are the main values to be protected." (Strategic Review 2007 –p. 94)
- The GIOA has had its consultants explain the current method used to identify "Floristic Communities' and with the Author understands and accepts that given the constraint on resources and the nature of Western Australian ecosystems the method has a scientific basis and appreciates the advice that.... "Most of the current algorithms used in these multivariate analysis have their origins in the 1960's and 1970's and are now standard components of undergraduate courses across botany, zoology and marine science."(Strategic Review P.32). The GIOA however, has indicated it does not accept that "The interpretations and conclusions are scientifically rigorous and defendable in terms of contemporary theory" (Strategic Review P.32). The results using this method are scientific reproducible but the final process of determining the number and composition of 'Floristic Communities' is subjective because (see definition above) it depends on the scale that is chosen to determine the degree of difference between clusters of different species. The Author has communicated with Professor McCune of Oregon State University who is an international authority on the methodology and Dr. Neil Gibson who we acknowledge is also an expert on the science that is being used. There is general agreement that there are significant elements of the methodology which are subjective. For example Professor McCune includes the following quote in his paper....
  "The study of vegetation presents a dilemma which is common to many branches of biological science. On the one hand, vegetation shows endless variation in composition, time and space .Hence any classification of it has arbitrary criteria, and the different units thus identified inevitably intergrade. On the other hand, in order to study vegetation, or any other biological phenomenon, it is necessary to create order, to identify small units which it is possible to study. It is important to recognize that any classification is only a working hypothesis, an ad hoc fiction necessary to advance scientific understanding, but whose usefulness is limited to the particular situation for which it was formulated. Unfortunately, the essential purpose of the classification and its intrinsic limitations seem often to be overlooked." (McCune and Grace (2002).

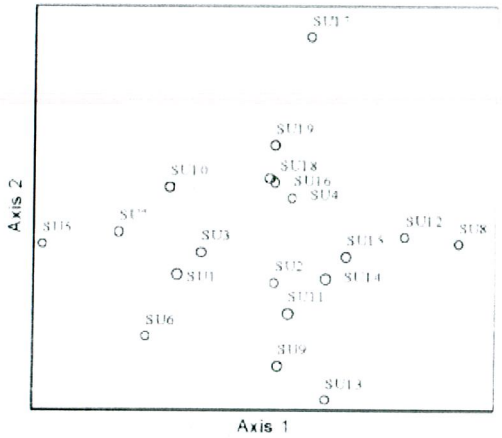

Figure 13.3: A two-dimensional ordination of sample units in species space. Distances between sample units approximate dissimilarity in species composition.

The effect of scale is illustrated in the above diagram extracted from their textbook. (McCune and Grace (2002)

Up until this point the process is objective (albeit with the deficiencies noted above and below) but the next process is subjective. The question is, does the operator link SU9 and SU13 as a distinct community or does he judge that SU13, 9, 11, 2, 14, 15,12,8, is one unit? Alternatively he may assess that the distances between all of the plots are too small and this is one community. The decision he makes can have a profound effect on whether the community is rare or is present on other BIFs. Even if it is not on other BIFs it is much easier to locate mining operations away from one community as opposed to 20.

The fact that the scale selected can have a significant effect on the number of communities identified is documented in the Strategic Review. ..."the number of community types reported for Mt Karara / Mungada / Blue Hills (Table 3 is drawn from the regional survey, as there were eight communities identified by DEC and 21 by the proponent survey. (Strategic Review P42.)

The effect of altering the scale at which floristic community types are identified is illustrated by an assessment of the floristic community types on the Karara Iron Ore project at three progressively increasing scales in Fig.13, 14, and 15. (Produced by Woodman Environmental Consulting Pty.Ltd. with the permission of Gindalbie Metals Ltd.)

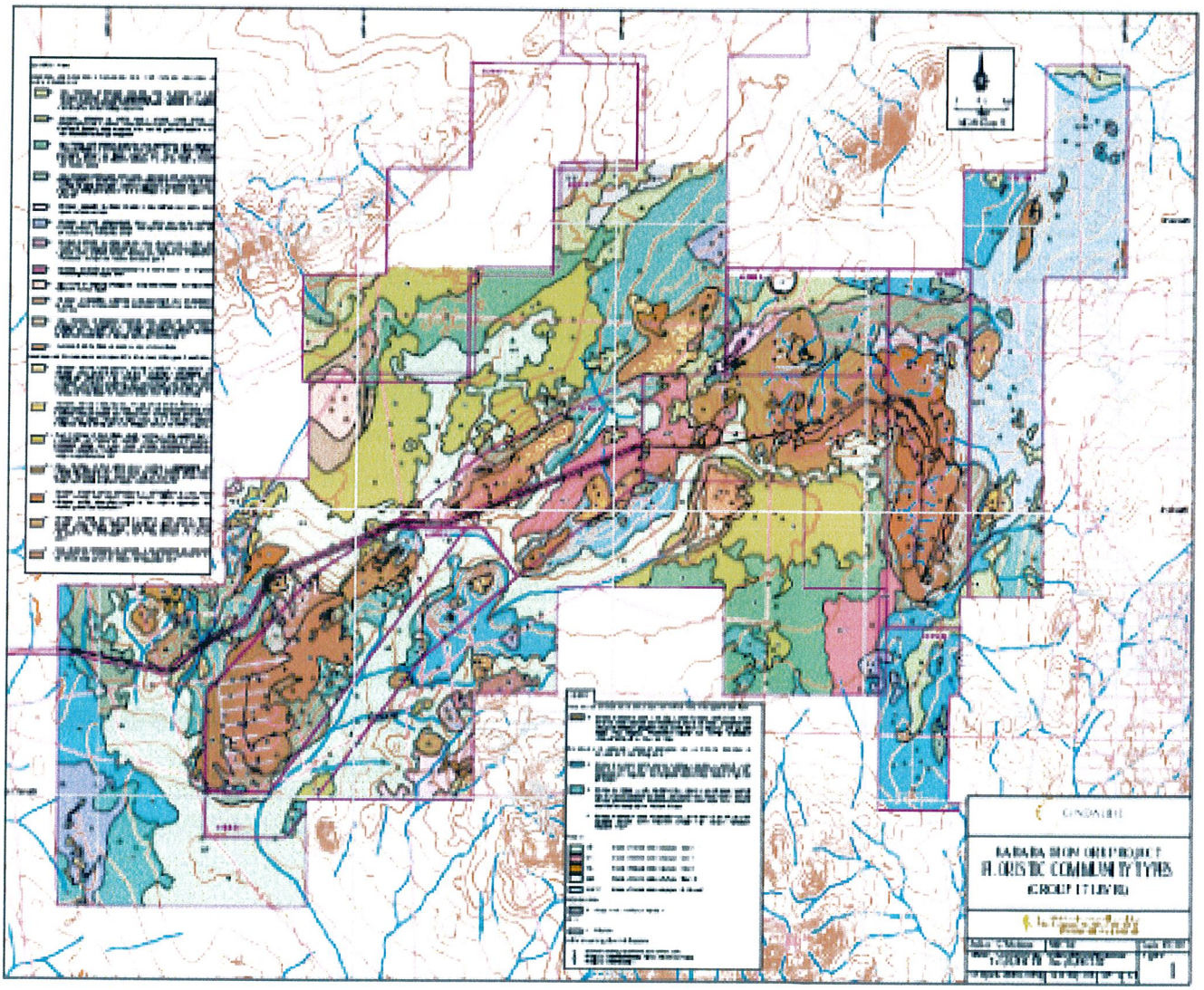

Fig. 14. Level one assessment of floristic communities.

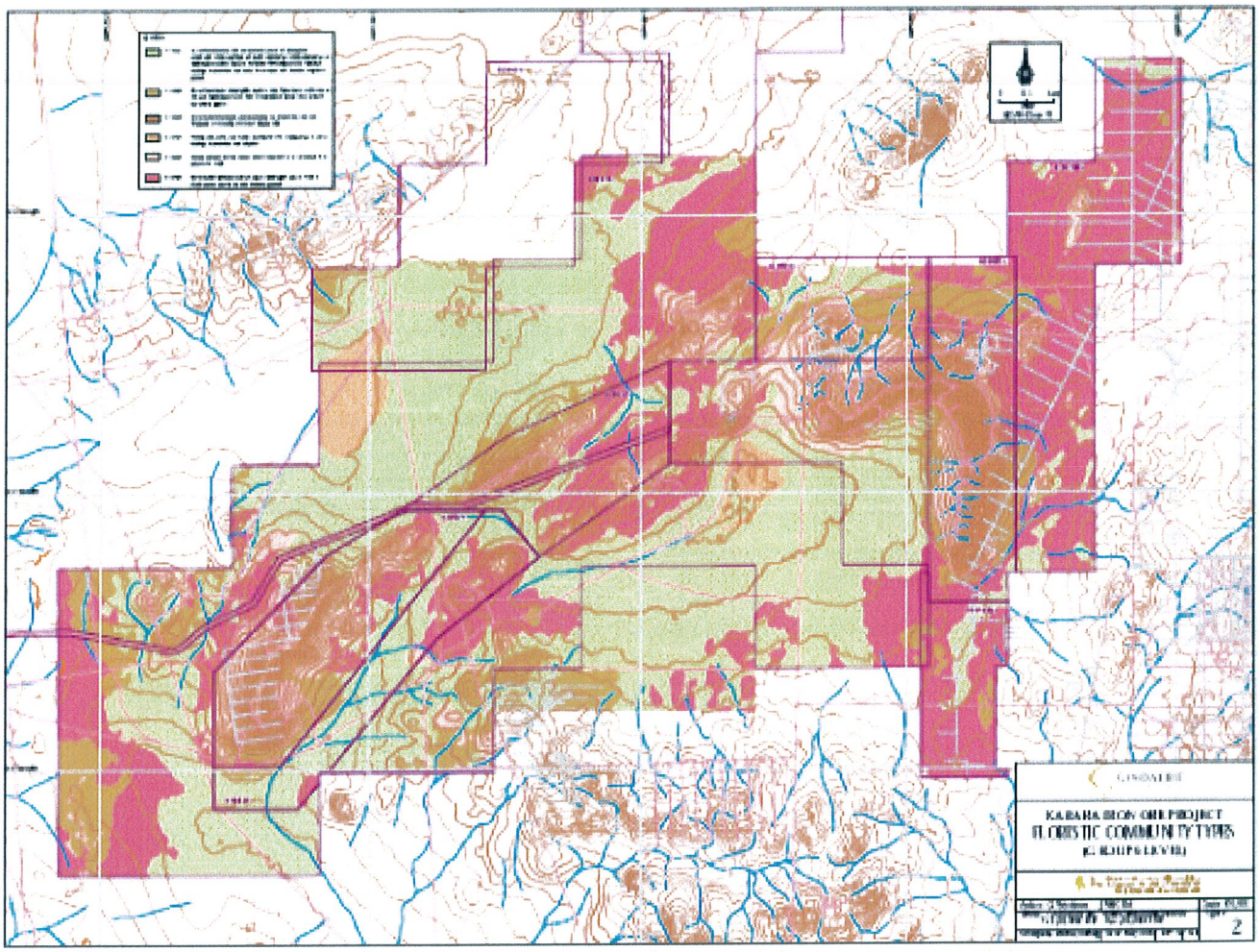

Fig 15. Level two assessment of floristic communities

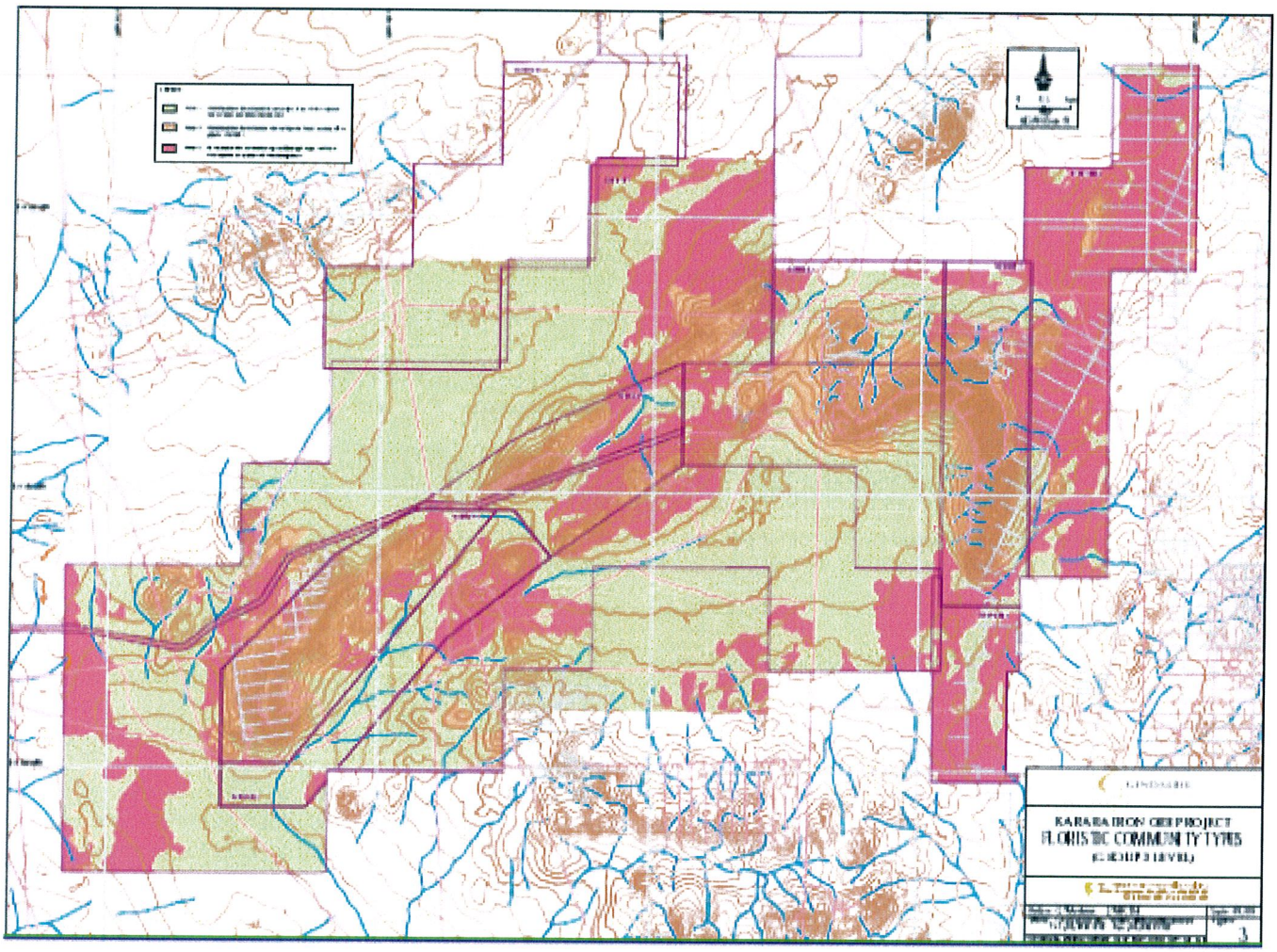

Fig 16. Level three assessment of floristic communities.

The GIOA has stated that it does not necessarily accept statements such as the following which was made in relation to Mt. Gibson, "In this instance, the interpretation and conclusions drawn from the Mt Gibson data set are scientifically rigorous and defendable in terms of contemporary ecological theory. The data set analysis has been used to form the position that the protection of the rare species over the remaining portion of the Mt Gibson ranges requires commensurate protection of associated floristic communities in order to preserve ecological processes (such as the pollination of flowers) and habitat that may be critical to the survival of these species in the wild." ... for the reasons outlined above.

Further to this, the GIOA does not denigrate the work of scientists involved in evaluating 'Floristic Communities' on the Mid West BIFs but it is concerned that subjective decisions are being made by Western Australian Threatened Species and Ecological Communities Unit (WATSCU). This is not a criticism of the individuals on the committee, but a concern that appropriate representation of some stakeholders is not in place when subjective decisions which can have a major impact on the assessment process are being made.

Consequently the GIOA has put forward that it would like to discuss with the Government the potential to broaden representation on the current committee and make more transparent the subjective phase of the process of identifying 'Floristic Communities and their threat status'.

- In addition to concerns about the application of the technology used for identifying "floristic communities", there is a concern that there seems to be an assumption that the ecological communities and there elements are static. The concept of dynamic ecosystems has been accepted for decades and taught in undergraduate courses long before multivariate analysis was introduced. In particular fire frequency, intensity and the season in which it occurs can have dramatic effects on the species composition and structure of an ecological or floristic community.

The implications of the application of Guidance point (v) (p. 10 Strategic Review)

The statement ..."This would indicate that no development should occur in those floristic communities that are likely to be significant for the maintenance of long term viability of threatened species and threatened ecological communities." potentially could represent a "fatal flaw" to a number of strategic BIF projects.

The GIOA appreciates the offer that has been made for a workshop on floristic communities and anticipates that following State Government response to this submission that one will be arranged perhaps as part of a broader workshop on other key environmental issues raised in the Strategic Review.

Implications of Key Principle (iii):

The GIOA has also recognised that it is essential that an adequate, comprehensive and representative reserve system be established in the Yilgarn Craton but believes, that reservations should be made in the context of the whole regional interest. Before irrevocable reservations are made all relevant environmental, social and economic factors need to be properly assesed. In the interim, areas that have at this stage been identified as having potentially high bio-diversity could be protected by legislative and or legal processes that preserve the options for future reservation.

VI. Translocation and Reconstruction of Ecosystems

The GIOA has accepted that translocation and reconstruction of ecosystems that are severely impacted by mining is only one of a number of conservation measures that can be used to compensate for the loss of biodiversity values. The GIOA believes that the excessively negative approach to this conservation management technique, as outlined in the Strategic Review, is inappropriate. The GIOA therefore has submitted that the "bottom line" requirement for the preservation of biodiversity is the preservation of the variation in individual species because as long as the particular configuration of DNA in the cells is preserved, the ultimate requirement for biodiversity exists. It accepts that insitu conservation is desirable, but where compromises have to be made, it contends that translocation and reconstruction of ecosystems can be employed.

The EPA in its position paper on offsets does not exclude the use of offsets even if they have "significant adverse impacts to 'critical assets'...."

While there are likely to be examples where it is difficult in the time available to demonstrate "sustainability" of translocated individual species and reconstructed ecosystems, it is also a fact that the successful translocation of many species around the world has demonstrated that it is possible for translocated species to be self sustaining. A local example of translocation and reconstruction of ecosystems is the rehabilitation of mine sites in the Jarrah forest which appear to be accepted by the community and assumingly, because of the absence of any overt criticism, by the W.A. scientific community.

The GIOA agrees that long term field research should be undertaken in this area but has noted that is difficult when apparently successful translocation trials are removed after a short period.

VII. The Use of Environmental Offsets.

The Strategic Review states with respect to environmental offsets "DEC is of the view that unique and irreplaceable biodiversity values should be conserved insitu and an approach of net environmental gain is not feasible." (Strategic Review-P.54) The GIOA has agreed that where practical insitu conservation should be a priority, however, it does not agree that an approach of "net environmental gain ' is not feasible in the Midwest.

The EPA in its 2006 Position Paper No.9 on offsets defines "a net environmental benefit" as .....

"Achieving a 'net environmental benefit' goal means that each offset proposal should address direct and contributing offsets to meet the offset principles in this Position Statement."

And in the same document states.....

"When relevant to ecosystems, direct offset options may include restoration or rehabilitation of existing degraded ecosystems, re-establishing desirable ecosystems (e.g. re-establishing biodiversity corridors or specific ecosystems in areas of low representation) or implementation of agreed recovery plans for species. Where native vegetation is outside the conservation estate and is subject to threatening processes, its acquisition and inclusion into the conservation estate may be considered a direct offset for the purposes of this Position Statement because of its security of tenure, purpose and management." P8. and....

"Where relevant to ecosystems, to achieve 'like for like or better' an offset resource from a lower quality asset which is the subject of the impact may be substituted for a higher quality asset in order to obtain an improved environmental outcome."P10.and....

"Where 'like for like or better' principles cannot be achieved due to limited availability of comparable ecosystems in the local vicinity, it must be ascertained if the ecosystem to be impacted is special to the bioregion. This may require relevant government environmental agencies to reassess whether this particular ecosystem type is a 'critical asset'. Under this scenario, other more suitable offset sites may be recommended to the proponent by the relevant environmental agencies. P10, 11.

The EPA put a caveat on the use of offsets-"critical assets":

"Critical assets' represent the most important environmental assets in the State that must be fully protected and conserved for:

- the State to fulfil its statutory and policy requirements;
- the State to remain sustainable in the longer term; and,
- the EPA to comply with its general principles for advice and decision making (see Section 3 on Principles).

Therefore, when the issue is before the EPA, there is a presumption against recommending approval for proposals that are likely to have significant adverse impacts to 'critical assets'. The EPA does not consider it appropriate to validate or endorse the use of environmental offsets where projects are predicted to have significant adverse impacts to the following...

- Where adverse impacts to native vegetation are seriously at variance to the principles to protect native vegetation listed under Schedule 5 of the Environmental Protection Act 1986 or associated Regulations where:
  "a) It comprises a high level of biological diversity;
  b) It comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;
  c) It includes, or is necessary for the continued existence of, rare flora;
  d) It comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community..."

But this caveat is dependent on the assessment of how critical the asset is and the EPA also states:

"In some instances, significant adverse impacts to 'critical assets' may be approved by State Government Ministers to provide an essential community service (such as electricity, water, gas and transport infrastructure), public benefit, or to allow strategic social or economic development to occur."

Under these circumstances, the EPA's advice is that approval of any such project of this nature should be made conditional on the:

- Consideration or demonstration (to the maximum extent possible) of on-site impact mitigation; and
- Development and implementation of an acceptable, comprehensive offsets package for significant, residual adverse impacts." P.17 (Position Paper 9)

The GIOA members have committed to, as far it is practical, to minimise the impact of mining operations on critical conservation assets where they occur on BIFs. It is however, probable that there will be situations where it will not be practical to avoid impacts. But the GIOA has strongly submitted, that where this situation occurs, it is possible to develop an offset package with significant 'net environmental benefit".

Notwithstanding the general negative approach to offsets in the Strategic Review, it does concede that "The EPA has a strong preference for offsets to be 'like for like', but does include offsite reparation of environmental damage as an offset possibility".

The GIOA believes that the occurrence of the BIFs in an environment surrounded by environmental degradation is a unique situation and it would be irrational to exclude environmental offsets which include offsite reparation. The GIOA member companies have, however, clearly stated that they do not support development that would make any species extinct.

However, given that...

- Many of the BIFs are surrounded by rangelands that are severely degraded by grazing
- The presence of foxes, cats and wild dogs are a major threatening processes which threaten biota and floristic communities on the rangelands and on the BIFs
- Uncontrolled fire has the potential to have significant detrimental effects over large areas of the rangelands ... it is difficult not to conclude that where appropriate, a regional conservation approach as has been described above would not deliver a significant 'net environmental benefit'.

VIII. Conclusions

The GIOA hope this critique will remove uncertainties, which inevitably occur when complex issues are outlined and will also provide a basis for a more positive relationship between the GIOA, the Government and Government Agencies. The

GIOA believes that it would be possible to develop a major mineral export industry which will underpin the development of a major port and a significant decentralized workforce in the Mid West while at the same time making a contribution to restoration of the severely degraded rangelands.

REFERENCES

Brandis, A. 2005.The Establishment, Management and Evaluation of the Conservation Reserve System in the Rangelands of Western Australia. Thesis submitted in partial fulfilment of the award of the degree –DOCTOR OF NATURAL RESOURCE MANAGEMENT –University of Notre Dame, Australia.

Department of Environment and Conservation and Department of Industry and Resources, (2007) Strategic Review of the Banded Iron Formation Ranges of the Midwest and Goldfields.

Environmental Protection Authority (2006).Bulletin 1242-Mt Gibson Iron Ore Mine and Infrastructure Project.

Environmental Protection Authority (2006).Environmental Offsets, Position Statement No. 9 January 2006, Perth Western Australia.

McCune, B. and J.B.Grace (20020 Analysis of Ecological Communities

Richards, J. and D. Algar (2008) Controlling feral animals in the rangelands. Landscope Autumn Edition. Published by Department of Environment and Conservation.

Geraldton Iron Ore Alliance

Clive Brown, Chairman
Rob Jefferies, Deputy Chairman

Phone: 9964 7923

PO Box 2394, Geraldton WA 6531

www.gioa.com.au