FYNBOS FIRE

A MODEL FOR INTEGRATING FIRE AND INVASIVE ALIEN VEGETATION MANAGEMENT IN THE FYNBOS BIOME

LESSONS FROM THE AGULHAS PLAIN AND SOUTHERN CAPE

March 2016

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Executive Summary

The widespread and detrimental impact of the combination of fire and invasive alien vegetation on the Fynbos biome are a reality that Fynbos managers face today. The future of the Fynbos biome and related ecological services, such as biodiversity and water production, are under severe threat. This situation requires resolute and determined management intervention.

The GEF FynbosFire Project, implemented by Kishugu Non Profit Company (NPC), aims to develop the adaptive capacity of Fire Protection Associations (FPAs). The mid-term review of the Project identified the need to consider ways and means of integrating the management of veld fires and invasive alien vegetation in the Fynbos biome. As a result, Kishugu NPC commissioned a study of the current status of fire and invasive alien vegetation management in two study areas, namely the Agulhas Plain and the Southern Cape.

This study concluded that the management of veld fires and invasive alien vegetation was characterised by a complexity of agencies with different mandates within a range of land ownership types and stakeholders. Stakeholders within a geographical region sometimes work at cross-purposes and often miss opportunities to support each other. There is a lack of good information and communication systems for information-sharing. The underlying ecological principles of fire and invasive alien vegetation management are not followed and formal integration planning is seldom practiced, leading to the ineffective management of fire and invasive alien vegetation, significant inefficiencies and wastage of resources.

A series of workshops were then held with landowners and managers directly involved in the management of fire and invasive alien vegetation in the two study areas. Based on the outcomes of the workshops, a model for a procedural framework for institutional integration of the management of veld fires and invasive alien vegetation was formulated. A key principle underlying the model presented in this report is that neither fire nor invasive alien vegetation can be managed effectively in isolation. Current management practices in the Fynbos biome can and should be modified to align with this principle.

The proposals and suggestions made in this report regarding this model reflect the experience and knowledge of the stakeholders in the two study areas. The model proposes a series of steps to be followed by stakeholders collaborating with each other in a particular area. The model is a guideline, it is not prescriptive. It follows a generic planning process, which is flexible and can be adapted to local circumstances.

The process begins with initial planning, drawing a provisional boundary for the area, identifying and engaging with local stakeholders, and establishing an interim team to drive the process, where possible with the support of the local Fire Protection Association. A more permanent Integration Core Team is established as the process advances. The process should be fully representative of all stakeholders, although this may not be feasible at the outset. This phase would be followed by undertaking a situational analysis to identify priority areas for action. Criteria for prioritisation should be practical and include environmental, social, economic and feasibility aspects. Indicators and baselines for monitoring that are relevant, cheap and easy to administer should be identified.

The next step is the preparation of an Integrated Strategic Management Plan (ISMP), setting out goals, priorities, standard operating guidelines and 3-year targets. Once this plan has been adopted by stakeholders, agencies would draw up their own annual plans of operation in conformity with it. Fine-scale planning would then be done for priority areas identified in the plan. Implementation follows this phase. The role of the ISMP is not to dictate in detail what agencies and landowners should be doing on the ground, but to provide a framework for action by the various stakeholders that will promote integrated fire and invasive alien vegetation management, and assist in reaching the common goal.

During this phase, the Integration Core Team would provide ongoing support for implementation, including awareness raising, advice on techniques and skills training, joint fundraising and, where appropriate, managing incoming funds, overseeing the monitoring and evaluation process and managing a stakeholder forum for resolving issues and sharing lessons. Lessons from monitoring and evaluation would flow to the stakeholder forum and into the review of the ISMP. The overall process is iterative, with the ISMP being reviewed after 3 to 5 years, based on the monitoring and evaluation findings.

The success and sustainability of the integration process is dependent on stakeholder commitment, appropriate skills and effort, as well as adequate resources. Dedicated resources are needed if the process is to be successful. Because integration would lead to significant benefits, stakeholders consulted were keen undertake it, and to bring their skills, experience and resources to the process. Funding support for integration activities from the Department of Environmental Affairs would be essential to the success of local efforts. In addition, effective co-ordination and integration between the Working for Water and Working on Fire programmes would result in more effective use of resources, significant savings and greater impact on the ground. It would also foster integration at local level.

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Acronyms

Acronym	Meaning
ABI	Agulhas Biodiversity Initiative
APO	Annual Plan of Operations
CMA	Catchment Management Agency
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs (National)
EPWP	Extended Public Works Programme
FMU	Fire Management Unit
FPA	Fire Protection Association
GEF	Global Environment Facility
GIS	Geographic information systems
ICS	Incident Command System
ICT	Integration Core Team
IFM	Integrated fire management
ISF	Integration Stakeholder Forum
ISMP	Integrated Strategic Management Plan
M & E	Monitoring and Evaluation
NEMBA	National Environmental Management Biodiversity Act
NGO	Non- governmental organisation
NPC	Non-profit company
NRM	Natural Resource Management
NVFFA	National Veld and Forest Fire Act
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SOG	Standard Operating Guideline
WfW	Working for Water
WIMS	Water Information Management System
WoF	Working on Fire

Background

Extreme weather events, such as the heat waves that have spread across the Western Cape this summer, are a feature of climate change[1]. Such events will lead to a more severe and longer fire season and this in turn will lead to more frequent and larger veld fires. Invasive woody alien plant species introduced to the Fynbos biome have a detrimental impact on fire safety, water production and biodiversity in the region. These invasive alien vegetation species originate from fire-prone environments and their ecology is intrinsically linked to fire. Frequent and large veld fire events in the Fynbos biome have enabled these plants to infest vast tracts of the natural landscape, which in turn has contributed to increases in the frequency and intensity of fire events. The risk is expected to be exacerbated by climate change, which could cause larger and more frequent fires[2].

The FynbosFire Project is an initiative funded by the Global Environment Facility (GEF) and managed by the Kishugu Non Profit Company (NPC). The Project aims to reduce the risk of increasing frequency and intensity of veld fire in the Fynbos biome. A key means of achieving this has been through enhancing the adaptive capacity of Fire Protection Associations (FPAs) and communities in the wildland-urban interface.

The mid-term review of the GEF FynbosFire Project found that there was a need to consider ways and means of improving the coordination between the management of veld fires and invasive alien plant species in the Fynbos biome. Despite the negative effects of the relationship between fire and invasive alien vegetation, Western Cape programmes have over the past 20 years managed fire and invasive alien vegetation along parallel lines, with virtually no coordination between them.

To begin to address this issue, the GEF FynbosFire Project commissioned a study of fire and invasive alien vegetation management in two areas of the biome, the Agulhas Plain and the Southern Cape. The study examined the current status of the environment as well as management facilities and resources. The findings of the study were distributed as Status Reports[3]. In accordance with the recommendation of the mid-term evaluation, the Status Reports focussed primarily on the institutional (or managerial) aspects of integration, as opposed to the technical (or ecological) aspects.

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[1] South Africa Summer heat breaks 21 records: What's going on with the weather?
http://traveller24.news24.com/News/Alerts/sa-summer-heat-breaks-records-whats-going-on-with-the-weather-20160113
2015 The warmest year on record - http://www.news24.com/SouthAfrica/News/2015-going-to-be-the-warmest-year-on-record-researcher-20151030

[2] Midgley, G.F., Chapman, R.A., Hewitson, B., Johnston, P., de Wit, M., Ziervogel, G. Mukheibir, P. van Niekerk, L., Tadross, M., van Wilgen, B. W., Kgope, B., Morant, P. D., Theron, A., Scholes, R. J., Forsyth, G. G., 2005. A Status Quo, Vulnerability and Adaptation Assessment of the Physical and Socio-Economic Effects of Climate Change in the Western Cape. Report to the Western Cape government, Cape Town, South Africa. Report number ENV-SC 2005-073, Natural Resources and the Environment, CS I R, Stellenbosch.

[3] Erasmus, Z. 2015. Status Report on the Agulhas Plain Study Area. Prepared for Kishugu NPC as part of the study into the feasibility of integrating fire and invasive alien vegetation management activities in the Western Cape.
Erasmus, Z. 2015. Status Report on the Southern Cape Study Area. Prepared for Kishugu NPC as part of the study into the feasibility of integrating fire and invasive alien vegetation management activities in the Western Cape.

In summary, these reports concluded that the management of veld fire and invasive alien vegetation in both study areas was characterised by a complexity of agencies (all working on different mandates), land ownership and stakeholders. The precise circumstances vary from one area to another. Stakeholders within a geographical region are sometimes working at cross-purposes and often miss opportunities to support each other. There is a lack of good information, and of communication systems for information-sharing. The underlying ecological principles of fire and invasive alien vegetation management are not followed and formal planning is seldom practiced. The end result of all of this is that there is ineffective management of fire and invasive alien vegetation, significant inefficiencies and wastage of resources.

The Status Reports were circulated to relevant stakeholders in the study areas, in preparation for workshops held in both areas during November 2015. At these workshops, participants reviewed the reports. They were encouraged to explore the feasibility of integrating fire and invasive alien vegetation management in their study areas, and to consider ways to increase collaboration. Follow-up workshops were held in both areas during February 2016, to plan the way forward for integration.

From the discussions at both the November and February workshops, a model for the institutional integration of fire and invasive alien vegetation management has been formulated. This report sets out this model, which reflects the resolutions of the stakeholders, i.e. the landowners and managers directly involved in the management of fire and invasive alien vegetation in the two study areas, as well as insights from the Status Reports. This model presented here is a guideline on how to achieve integration in the Fynbos biome and possibly in other regions of the country facing similar challenges.

Key Findings of the Status Reports

The two study areas were chosen because they were geographically defined and provided a fair representation of the management organisations involved in fire and invasive alien vegetation management. Interviews were undertaken with landowners and managers together with a series of field visits. The objectives were to:

- Determine the type of institutional strategies or management plans utilised by the various stakeholders in the area;
- Establish to what extent the strategies are applied in the field;
- Verify the scale of invasive alien vegetation infestation in the area, and
- Identify the challenges faced by managers in the field.

The Status Reports detailed the findings for each region. The most fundamental findings shared by both reports are listed below.

No co-ordinated planning is undertaken amongst the various stakeholders in an area with respect to the management of fire and invasive alien vegetation. A single catchment basin or geographic area may be managed by a range of different landowners each with their own policies, plans and budgets.

Prescriptive management plans are prepared by the formal conservation and forestry agencies adhering to legal requirements in terms of the National Environment Management Act. Private landowners tend to have plans that are more strategic in nature and provide guidelines for management.

There is no strategy yet to apply the regulations of the National Environmental Management Biodiversity Act to compel landowners to take steps to eradicate invasive alien vegetation on their properties.

Extended Public Works Programmes (EPWPs) are implemented by stakeholders in both study areas. Working for Water (WfW) is the dominant programme, its focus being on the conservation of water resources through the clearing of invasive alien vegetation, while Working on Fire (WoF) focuses on the management of veld fires. The dominance of WfW is demonstrated by the fact that there is only one WoF team in the Agulhas Plain Region as opposed to 33 WfW teams.

Formal agencies (including municipalities and conservation agencies) implement both WfW and WoF projects in their areas. However, management plans do not integrate fire and invasive alien vegetation at a practical management level. No provision is made for managing the fuel loads created by clearing operations, and WfW teams do not appear to be trained to carry out stack, prescribed and fuel reduction burns. This situation is exacerbated by the fact that the Water Information Management System (WIMS) of WfW does not take the role of fire in the local environment into account.

The study found that the end result of this lack of co-ordination is that neither fire nor invasive alien vegetation are effectively managed in the study areas. In consequence, water resources are not effectively conserved, fire safety is not addressed, and biodiversity is increasingly threatened by both fire and invasive alien species. In addition, a vast number of job opportunities are also lost as fire management is not appropriately practiced.

Overview of the Planning Process

This model presents a procedural framework through which coordination of integrated fire and invasive alien vegetation management can be achieved. It sets out a series of rational steps to be followed by stakeholders collaborating with each other in a particular area. The process is not prescriptive. Instead it follows a generic planning process, which is flexible and can be adapted to local circumstances. The steps are outlined in Diagram 1. These are:

1. Start-up phase (plan for a plan)
2. Situation assessment
3. Integration planning (area-wide)
4. Finer-scale planning and operational planning
5. Implementation
6. Monitoring and evaluation
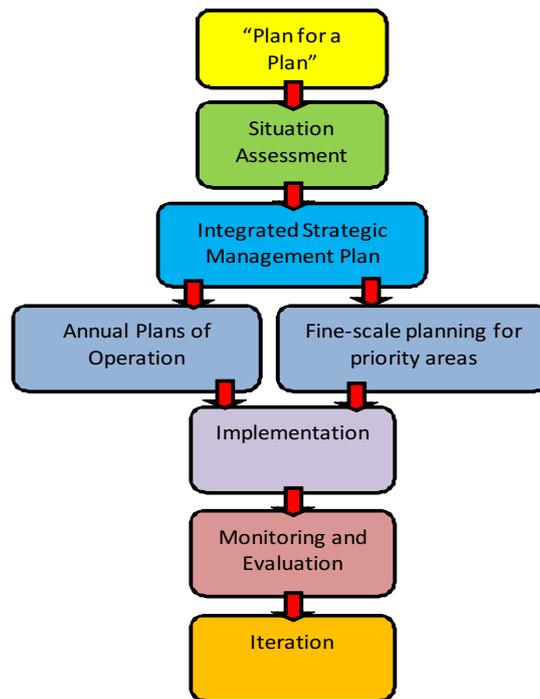7. Iteration (review the plan and then cycle through the steps again).

Diagram 1: Suggested steps in the Integrated Planning process

Step 1: Initiating integration: a plan for a plan

1.1 Building on local strengths

From a practical perspective, a gradualist approach to initiating integrated fire and invasive alien vegetation management is advised. Experience in the study areas has shown that, at the outset, it is advisable to "work with the willing". Although the ideal is to involve all relevant stakeholders in the area, the process should not be inordinately delayed if this ideal cannot be achieved at the start. Over time, as the benefits of integration become increasingly evident, it will become easier to reach and involve all stakeholders. The intention thus is to start with raising awareness of the need for and benefits of integrated management. This can be achieved by finding opportunities to 'tweak' existing messages about fire and invasive alien vegetation, so that they align better with integration goals.

Stakeholders in the study areas wished to avoid a situation whereby integration efforts, as in the past, come to a halt when the planning process takes place. Care should be taken not to undermine such efforts, nor to duplicate them. Instead, the process should build on existing successes and lessons learnt in the area.

Likewise, the process should draw on the resources that are already present in the area, for example the structures, programmes, materials. This includes the expertise, knowledge, experience and resources available in the local area.

To make an immediate start on integrated management, even before planning is undertaken, stakeholders may be able to make small changes to project proposals that are already in the pipeline, so that they show some level of integration. This could for instance include redeploying

WfW teams to clear invasive alien vegetation regeneration in wildfire scars or training and equipping WfW teams to undertake fuel reduction and post clearing burns.

1.2 Kick-starting the planning process

Who should initiate the process in the area? Lessons from the study areas suggest that because FPAs are legal entities that are accorded specific veld fire related powers in terms of the National Veld and Forest Fire Act (NVFFA), they could play a key role in the process. It is suggested that a group of stakeholders who are FPA members and directly involved in fire and invasive alien vegetation management, should form an interim sub-committee of the FPA to kick-start the integration process.

This group would initiate the first or preparatory phase of integration planning, also known as a "plan for a plan". This phase would include the following initial actions:

- Determining a provisional boundary for the area;
- Identifying existing groupings and stakeholders in the area, including state, private and NGOs. These groups should have a potential interest in managing fire, invasive alien vegetation, biodiversity and water supply;
- Calling these stakeholders together, and explaining to them the need for and benefits of integrated management of veld fire and invasive alien vegetation.

> *What is needed is to form an effective partnership, with all parties working together in a coordinated and integrated way Organisations will always operate within "silos", as they have their own mandates and legal obligations to perform within their respective areas of operation. The objective of the integrated management process is to ensure effective co-ordination and willing collaboration for mutual benefit.*

These stakeholders should agree to form themselves into an **Integration Stakeholder Forum** (ISF), comprising all relevant stakeholders in the area. However, if an appropriate multi-stakeholder structure with similar objectives already exists in the area, duplication should be avoided. Lessons from the study areas suggest that any multi-stakeholder body that is active in the area, has similar or related objectives, represents all the relevant stakeholders, and has jurisdiction over the same or approximately the same area could play this role. An agency that provides an easy entry point for private landowners would be good. There is a need to be flexible on this issue, and adapt as needed.

The ISF would choose the members of the task team or working group that would co-ordinate and drive the integration planning process. This team should comprise suitably qualified and experienced members, including representatives of the key role-players in fire, invasive alien vegetation and

water management in the area. In this document, this team is termed the **Integration Core Team** (ICT).

The partnership could be managed along the lines of the Incident Command System (ICS), since this is an internationally recognised management structure and acceptable to most organisations. Chairing responsibilities could be rotated amongst organisations to share the workload. If the ICT is appointed as an extension structure of the FPA, then it would carry the legal authority of the FPA and the NVFFA.

The ICT should start by holding a "show and tell" session with all stakeholders, giving each implementer an opportunity to present their fire and invasive alien vegetation management plans and activities, i.e. what they are doing and where.

The ISF should define a proposed way forward, in other words, a "plan for a plan". This plan should set out what needs to be done to draw up an Integrated Strategic Management Plan for the area. It should also set out the ICT's responsibilities in the next phase.

The ICT should strive to get all relevant players on board in the process. An important component of this would be raising awareness of the benefits of integrated management of fire and invasive alien vegetation. The ICT should play a strong communications role, including reporting back to stakeholders on a regular basis. If the ICT is effective in raising awareness and publicising the benefits of integration, it will draw in other stakeholders over time.

1.3   Resources and capacity needs

The ICT would need capacity to undertake its duties. Ideally, the following would be required:

- Stakeholder engagement skills
- Knowledge of local socio-economic conditions
- Skills in project development & conservation planning
- An ecologist with local fire and invasive alien vegetation ecology
- Dedicated administrative and communications capacity
- Access to mapping and GIS skills
- Relevant legal knowledge
- Skills in managing financing and funding, and in reporting to funders
- Accessible extension capacity with relevant skills and knowledge
- Monitoring capability.

Stakeholders in the study areas felt very strongly that the process would not move ahead at the required rate without at least one dedicated staff member to undertake core administrative and communications duties. Although stakeholders can contribute some resources and time to the process, most are overcommitted and not able to provide a dedicated resource to drive the process.

Step 2: Undertaking a Situation Assessment

2.1 Determining the geographic area

The formal integration planning process starts with undertaking a situation assessment. Determining the geographical area to be addressed is a critical early step in this process. The boundaries of the area should be agreed upon by all stakeholders, and should take into consideration the boundaries of existing groupings and agencies, including the FPA, CMA, District Municipalities, National Parks and Reserves, etc. The scale or size of the area covered should be manageable in terms of feasibility and impact.

The boundaries of area should be determined keeping in mind that "fire and invasive aliens know no boundaries". Poorly managed areas will impact on well managed areas no matter how efficient their management may seem. Particular attention may be paid to sensitive areas threatened by fire and invasive alien vegetation. Ecological criteria should also be used, for instance, including whole catchments from source to sea.

Boundary definition should be flexible and is likely to change as the integration processes evolve.

2.2 Situation assessment

The situation assessment would of necessity be science-based. A crucial factor in undertaking the assessment would be the need to obtain relevant, accurate data. Much of this information will be in the hands of key stakeholders, and it is therefore essential that these stakeholders commit to collaborating and sharing information/data.

Once relevant data is assembled and analysed, the next step would be to establish criteria for prioritisation which are both practical and feasible. These would need to include environmental, social, economic and feasibility criteria. This would be followed by undertaking risk assessments. (There are a number of options for tools to do this). The risk assessment could determine what are the most destructive issues impacting on natural systems in the overall landscape, e.g. runaway wildfires, aggressive Hakea infestation etc.

The final step would be to establish indicators and baselines for monitoring. Indicators need to be relevant (i.e. they should measure actual changes resulting from the project), and be cheap and easy to administer. Determining useful, valid and meaningful indicators can be very difficult.

An elementary monitoring system for invasive alien vegetation that is standardized and generic for the Fynbos biome needs to be devised for general application by all landowners. It should be sound enough that deductions can be made from reports. Monitoring the effects of Fynbos veld fires is complex and becomes even more so when the impacts of an integrated management need to be considered. Some thought will have to be applied to the development of a uniform system that is appropriate, and can be used throughout the Fynbos biome.

Step 3: Drawing up an *Integrated Strategic Management Plan*

Once the Situation Assessment has been completed and there is general agreement that it presents an accurate picture of the area, the next step is the preparation of what we have called an **Integrated Strategic Management Plan** (ISMP), setting out goals, priorities, standard operating guidelines and 3-year targets for integrated fire and invasive alien vegetation management in the area. This plan would be undertaken by a small planning team, which would include members drawn from the resources and skills available in the area.

3.1 Setting a goal

The first step in drawing up the ISMP would be to formulate a goal or goals for integration. Suggestions for an integration goal include "*Well-managed veld*" and "*Effective fuel load management for fire safety, biodiversity conservation, ecosystem services & socio-economic benefits*". A goal statement should be agreed upon by all stakeholders at the outset of the planning process.

Each organisation within the partnership would be pursuing its own specific goals in accordance with its own mandate. Thus, each stakeholder would have a slightly different reason for participating in the process. Nevertheless, all stakeholders want risk reduction of one form or another. A common overarching integration goal would be one that can be supported by all, as it would be for the general benefit of all.

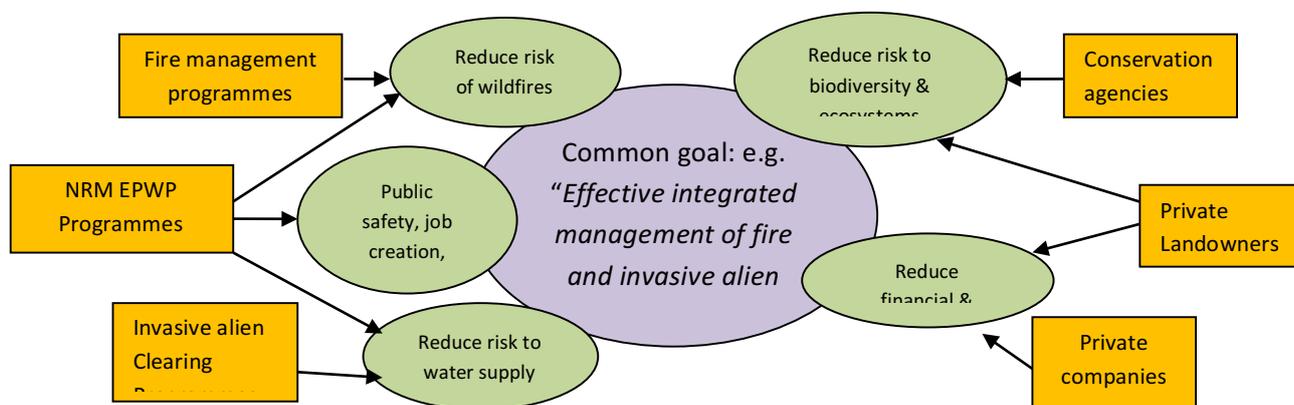This concept is illustrated in the diagram below:

Diagram 2: All stakeholders share the goal of risk reduction from poor fire and invasive alien vegetation management

3.2 Setting geographic priorities

The next step in the ISMP process would be to identify the priority action areas at landscape level. This would be based on the Situation Assessment, and would identify priority areas requiring immediate integrated management intervention. Such priorities could include priority catchments, wetlands systems and river corridors. Another approach might be to select priority fire management Units (FMUs) identified through the risk assessment process.

Priority areas should be ranked so that the most critical priorities are addressed first. Financial constraints need to be taken into account in prioritisation. When a priority area has been identified, a finer scale risk assessment and prioritisation at local level could be undertaken, as needed.

3.3   Standards and Standard Operating Guidelines

The role of the ISMP is not to dictate in detail what agencies and landowners should be doing on the ground, but to provide a framework for action by the various stakeholders that will promote integrated fire and invasive alien vegetation management, and assist in reaching the common goal. Each area will have a large number of different organisations and agencies operating within close proximity and co-operating on a scale that has not necessarily been attempted before. To ensure that the planning processes, and ultimately the ground operations as well, take place smoothly, it will be important to adopt standardised systems. This will apply to standard GIS mapping, as well as to all relevant routines, procedures, techniques and general practices used in the field.

It is essential therefore that practice standards and Standard Operating Guidelines (SOGs) be agreed on at an early stage of planning. These standards and SOGs should represent best practice in the integrated management of fire and invasive alien vegetation. They should be detailed, specific to the area, user-friendly and easy to update (e.g. web based) so that stakeholders are not working with out-of-date information. The ICT should ensure that these guidelines are easily accessible to all, and are kept up to date.

3.4   Targets, monitoring and evaluation

The ISMP should set out 3-5 year objectives and targets, using the indicators and baseline information developed in the Situation Assessment phase. Annual targets should also be set for this period. These should be reviewed annually.

A plan for monitoring and evaluation should be drawn up and agreed on. This would deal with how and when monitoring and evaluation would take place, whose responsibility it would be, and how the results would be used (in future planning) and made public.

3.5   Annual planning and priority area planning

A draft ISMP would be presented to the broader ISF for debate, discussion, amendment and ultimately adoption. Once the ISMP has been endorsed and adopted by stakeholders, it would be followed by two parallel processes:

- The first would be annual operational planning, where all agencies would draw up their own internal management plans and Annual Plans of Operation (APOs), in conformity with the ISMP.

- The second process would be fine-scale planning for priority areas identified in the ISMP. This would be undertaken by the relevant agencies and landowners in an inclusive local stakeholder process. Resources and technical support would be sought from the local area and through the ISF.

Step 4:   Implementation

Implementation would be undertaken by the various stakeholders in the area, in terms of their normal mandates and responsibilities. During implementation, the ICT would focus on ongoing co-ordination and support of integrated management. It is important to note that the ICT's role would not be to dictate to any organisation how to manage, but rather to coordinate activities so that resources can be effectively deployed. Its responsibilities could include:

- Joint fundraising, particularly for private landowners, and providing a mechanism for managing incoming funds centrally;

- In cases where the ICT has raised funds for implementation of aspects of the ISMP, the ICT would be responsible for checking the alignment of project proposals with the ISMP;

- Providing technical advice and training in integrated management to landowners, as needed;

- Convening the ISF on a regular basis to serve as a forum for resolving issues and lessons-sharing;

- Raising awareness of the benefits of integrated management, in particular with those stakeholders who are not yet participating in the process; and

- Monitoring implementation and undertaking regular reviews.

The ICT would need to be accountable to stakeholders in the area, and to ensure effective communication and information sharing.

Step 5:   Monitoring and evaluation

It is important to track the results of integration work as a means of measuring progress, of improving practice, and of demonstrating the value and benefits of integration.

The first steps in monitoring and evaluation are undertaken at an early stage of the planning process, when decisions are taken on what to monitor, and baselines established. During the process of drawing up the ISMP, a monitoring framework or strategy would be drawn up with 3-5 year objectives and targets. Monitoring and evaluation (M & E) arrangements would be agreed on at that stage. During implementation, monitoring would be undertaken in line with the M & E plan.

The M & E plan should include provision for an evaluation every 3 years, against the 3-year plans. More frequent reviews could also be included. Evaluation should be undertaken by an independent evaluator, who could possibly be a DEA appointment. A meticulous M & E programme will ensure that the impacts of the integration process are quantified and recorded for future examination. The results of such evaluations should be made public and used to inform the next round of plans.

Opportunities for ongoing learning will emerge from the M & E process as well as from discussions at the ongoing ISF forum. The ICT should ensure that these lessons are captured, shared and publicised, to demonstrate the economic and other benefits of integrated management and to support improved practice and enhanced benefits.

Step 6:   Iteration

The planning process would be iterative: annual planning would be undertaken each year in conformity with the ISMP, and the ISMP itself should be reviewed every 3-5 years, based on changing circumstances and results of programme, as reflected in the monitoring and evaluation process. Once the new ISMP is drawn up, it would then be followed by the other steps in the process described above.

Sustainability

The success and sustainability of the integration planning process is dependent on stakeholder commitment, appropriate skills and effort, adequate resources. Dedicated resources are needed if the process is to be successful. Because integration will lead to significant benefits to all stakeholders in terms of fire safety, improved ecological services and improved financial returns, it is likely that stakeholders would be happy to contribute to resourcing integration, once its value is demonstrated to them.

As a major stakeholder and funder, the Department of Environmental Affairs (DEA) and its Natural Resource Management programmes, particularly WfW and WoF, would benefit most from effective co-ordination and integration. Benefits would include significantly increased effectiveness, much more efficient use of resources and considerable financial savings. Funding the integrated management of these two programmes is not likely to cost more; instead, reallocating some of the existing funding to support integrated management would result in significant savings for both programmes.

Stakeholders in both study areas felt that it would be very helpful if financial support for the co-ordination and planning could be provided by DEA. Suggestions included funding ongoing integration coordination and communications, funding the ISMP planning process, including the associated consultative processes, and funding M & E programmes and associated stakeholder lessons-sharing forums. DEA could further support local integration processes through promoting implementation of this model throughout the Fynbos biome, and through a policy shift to supporting only those invasive alien clearing project proposals that specifically include measures to address fire risks.

In addition, local stakeholders also felt that the ICT should undertake a range of initiatives to improve sustainability, including:

- Finding skills and resources from amongst its own membership;

- "Make the case" for integration, through calculating the potential long-term cost savings and efficiencies of carrying out priority interventions;

- Exploring opportunities for cost recovery;

- Identifying a range of potential external funding sources to supplement the resources available in the area; and

- Collaborating with other areas that are undertaking integration programmes, to avoid competition for funding.

Conclusion

The widespread and detrimental impact of the combination of fire and invasive alien vegetation on the Fynbos biome are a reality that Fynbos managers face today. The future of the Fynbos biome and related ecological services, such as biodiversity and water production, are under severe threat. This requires resolute and determined management intervention. A key principle underlying the model presented in this report is that neither fire nor invasive alien vegetation can be managed effectively in isolation. Current management practices in the Fynbos biome can and should be modified to align with this principle.

The proposals and suggestions made in the model reflect the experience and knowledge of the stakeholders involved in fire and invasive alien vegetation management in the two study areas. These stakeholders are keen integrate the management of fire and alien invasive plants because they clearly understand the potential benefits of doing so. They are willing to bring their skills, experience and resources to the process, and to use existing institutions like the FPAs to take this forward. The commitment and efforts of local stakeholders are crucial to effective integrated management. However, they are unlikely to be successful unless their efforts are supported and their resources supplemented.

A key to integrating the management of fire and alien invasive vegetation would be to align funding in support of this principle. Local, provincial and national stakeholders are not yet aligning their budgets to support integrated management, with the result that the effectiveness of these efforts is significantly reduced. Effective co-ordination and integration between the Working for Water and Working on Fire programmes would result in more effective use of resources, significant savings and greater impact on the ground. It would also foster integration at local level. Such coordination between the two programmes could be achieved by reallocating funding, rather than by seeking new funds.

Local stakeholders felt that funding support by the Department of Environmental Affairs (DEA) for local integration activities would be essential. This would include funding ongoing coordination and communications, funding the ISMP planning process including the associated consultative processes, and funding M & E programmes and associated stakeholder lessons-sharing forums. DEA could further support local integration processes through promoting implementation of this model throughout the Fynbos biome, and through a policy shift to supporting only those invasive alien vegetation clearing project proposals that specifically include measures to address fire risks.

Annexures

Erasmus, Z. 2015. Status Report on the Agulhas Plain Study Area. Prepared for Kishugu NPC as part of the study into the feasibility of integrating fire and invasive alien vegetation management activities in the Western Cape.

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