



Conservation Strategy for the Bromeliad Society International

**Integration of the SWOT analysis
into the strategic formulation process**



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Table of Contents

ACRONYMS	II
Summary	III
1 Introduction	1
1.2 BIODIVERSITY AND BROMELIAD FACTS	1
1.2.1 Bromeliad Characteristics and Natural Growing Conditions	2
1.2.2 Utilisation	4
1.2.3 Bromeliads in International Policy and Legislation	5
1.2.4 Biodiversity Loss - Threats to Bromeliads and their Natural Habitats.....	6
1.3 BROMELIAD SOCIETY INTERNATIONAL.....	9
1.3.1 BSI Members	10
1.4 THE AIM OF THE BACHELOR THESIS ... FEHLER! TEXTMARKE NICHT DEFINIERT.	
2 Method.....	11
2.1 STRATEGIC PLANNING	11
2.2 INTEGRATING THE SWOT INTO THE ACTION PLANNING.....	12
2.2.1 Application of the SWOT.....	13
2.2.1.1 External Analysis.....	13
2.2.1.2 Internal Analysis.....	13
2.2.2 Member Survey	14
3 Outcomes	15
3.1 EXTERNAL ANALYSIS	15
3.1.1 Opportunities	15
3.1.2 Threats	17
3.2 INTERNAL ANALYSIS	18
3.2.1 Strength.....	18
3.2.2 Weaknesses.....	23
3.4 EVALUATION OF THE FORMER CONCEPTIONS	24
3.4.1 Analysis of the former Code of Conduct for Bromeliad Growers and Collectors of 1987	25
3.4.2 Analysis of the Conservation Goals of 1987	26
3.5 CONCEPTION OF THE NEW CONSERVATION STRATEGY	32
3.5.1 Conservation Strategy for the Bromeliad Society International.....	34
3.5.1.1 Strategic Action Plan for Bromeliad Conservation	34
4 Discussion	41
4.1 QUANTITATIVE EVALUATION OF ACTIONS RESPONING THE SWOT	41
4.2 FINAL DISCUSSION.....	43
5 Conclusion and Outlook.....	47
ACKNOWLEDGEMENT	48
LITERATURE CITED AND USED	FEHLER! TEXTMARKE NICHT DEFINIERT.
Appendix	V

Acronyms

BIC	Bromeliad Identification Centre
BSI	Bromeliad Society International
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
IUCN	The World Conservation Union
SCB	The Society for Conservation Biology
SWOT	Strength, Weaknesses, Opportunities, Threats
UNEP	United Nations Environmental Project

Summary

Conservation Strategy for the Bromeliad Society International

This document describes the development process of a conservation strategy for the Bromeliad Society International (BSI) with the application of the SWOT- analysis tool in the action planning process.

The Bromeliad Society International is a non-profit organization representing and promoting public interest into the plant family of Bromeliaceae. The BSI has included conservation of bromeliads in their mission statement.

The trigger to the development of a conservation strategy for the Bromeliad Society International as a bachelor thesis was a call for a more active engagement for bromeliad conservation done by the current BSI chairman for conservation.

After a short introduction to biodiversity and bromeliads, the organization Bromeliad Society International is presented. Within the context of strategy planning the situation of BSI will be analysed throughout the application of the SWOT management tool. In the SWOT- analysis process, a BSI member survey is introduced to gain a detailed and multiple viewed picture of organizational characteristics. The SWOT- tool locates the strengths, weaknesses, opportunities, and threats of BSI. Former conservation efforts as the Conservation Goals and Code of Conduct for Bromeliad Growers and Collectors are evaluated for their efficiency whereas improvements are added within the thesis. The outcomes of the SWOT and the evaluation of the previous concepts serve as a basic to formulate a conservation strategy.

The main item of this paper is the Strategic Action Plan as a precise tool to improve organizational's conservation actions for bromeliads in collections and in their natural habitats. The strategic conservation plan is divided into three phases: 1. The activities of the first phase aim at improvements of general organizational's management and its public performance. 2. The second phase proposes activities providing to create internal pre-conditions for conservation actions. 3. The third phase is a set of principles to successfully perform bromeliad conservation. Strategic drivers to the operationalization of the action plan will be the establishment of a Conservation Corner on the BSI website, the creation of a Conservation Fund, and the implementation of the updated Code of Conduct for BSI Members.

In conclusion does the strategic action plan inherits essential activities for an effective conservation strategy.

CONSERVATION STRATEGY FOR THE BROMELIAD SOCIETY INTERNATIONAL

1 Introduction

1.2 BIODIVERSITY AND BROMELIAD FACTS

Within the last decades the topic of biodiversity has become a more central focus for discussions within all sectors of society. It is no longer just an issue of conservationists, as the ongoing loss of biodiversity already has a negative impact on the quality of life of thousands of people.

The Bromeliads belong to the monocotyledonous and flowering plants. The family comprises about 56 genera with 3000 species (BSI 2007) and though building an important part of the world's biodiversity. In addition to their intrinsic value as well as ecological importance, bromeliads are also of scientific interest and are an important trade commodity as ornamental plants.

Except of one species (*Pitcairnea feliciana*), originating from West-Africa, most bromeliads are endemic to the tropical and warm temperate Neotropics, a floristic realm covering Central and South America. This floristic realm is characterized by its own special flora. In the tropical and subtropical zone of the New World (Neotropics), due to the closeness to the equator generally there is a high radiation, causing a high temperature and a lot of precipitation. Geographic formation such as for example the Andes, influence climatic impacts as well. The combination of the climate and the special local geography build a high variety of different abiotic factors to the plant and animal life. The Neotropics contain diverse ecosystems from humid, cloud, and dry forests to open dry and hot desert like habitats. The highest diversity can be found where the maximum resource availability exists (highest favourableness). Most important resources for vascular plants are light and water (Ibisch 1996) which counts for all epiphytes as well. The climate, the topography, a high productivity by a low nutrient availability, as evolutionary stress factors to adjust on, form the basis for tropical forest biological diversity.

Probably the most widely accepted definition of biological diversity has been provided by the Convention on Biological Diversity (CBD), as follows: "Biological diversity means the variability among living organisms from all sources including, inter alia,

terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes the diversity within species [genetic diversity], between species [species diversity] and of ecosystems” (CBD 2007).

Biodiversity is a unique natural resource that provides basic goods and services upon which human well-being depends such as:

- Ecological services: climate regulation, purification of air and water, soil protection, decomposition and conversion of waste, circulation of nutrients and carbon, biological disease control, pollination
- Socio-economic benefits: food, energy sources, generating jobs, construction material, fibre, raw materials for pharmacy and cosmetic products.
- Scientific and educational function: research, knowledge, information
- Recreational function: tourism, sports, relaxation
- Cultural importance: intrinsic and aesthetic value, sacred sites and monuments, traditional indigenous knowledge.

And yet there is still an enormous unknown potential since a lot of species (estimates range between 10-30 million) still remain undiscovered, many known species have not yet been examined for their potential value. The understanding and support of biodiversity and its conservation is essential for the effective and sustainable management of global natural resources.

1.2.1 Bromeliad Characteristics and Natural Growing Conditions

Bromeliads’ original habitats are from as far north as the state of Georgia, U.S. down to the southern tip of Argentina. Bromeliads can be found in the widest range of climates and habitats at sea level, in rain and high cloud forests, on arid coastal deserts and on the tops of mountains above the tree line, 12,000 feet above sea level. Greatest density can be found in the montane rain forest, between 300-3000m (Benzing 1994).

In many Neotropical ecosystems they represent an important component of the ecosystems.

In nature bromeliads can be classified into two living strategies. Some are growing terrestrially on the ground as for example the most famous bromeliad species *Ananas comosus*. The terrestrial ones living on rocks are also called saxicolous. About 50% of the family live as epiphytes (Ibisch 1996) growing on other plants in the axels of tree branches or in similar ecological niche. Some bromeliads are also called “Tank bromeliads” as their roots are poorly developed, but may store rain and/or water run-off

from the foliage above in their overlapping leaf basis or in a central cup. The small bodies of water which may be up to two litres are also called phytotelmata. They may function as an aquaria or a breeding place for different aquatic and amphibious organisms providing important life-cycle stages of many organisms ranging from insects to tadpoles. The trichomes at the base of the cistern assimilate nutrients, from the decomposed material of trapped organic material such as leaves, twigs, spent flowers and animal fecals. Outer leaf axils of many bromeliads hold no water, but they do hold decomposing organic materials and are humid. Some terrestrial animals as snakes and scorpions seek refuge in these bromeliads, especially in the dry season in Neotropical countries. In many cases ants can be found as steady inhabitants. Bromeliads may serve for ants as nest sites and though contain eggs, pupa and winged reproductives (Witman 2000). Because of bromeliads varying interaction with other organisms they have also been described as a “Keystone resource” in certain tropical forests (Armbruster et al 2002). Some organisms eat bromeliads such as fungi, and nematodes as pests or scale insects, weevils, squirrels (in North America) and spectacled bears (in South America). A few species, so called carnivorous bromeliads, trap and eat insects (Frank 2007)

Pollination of bromeliads is done by animals in all known instances. Seeds of some bromeliads are dispersed by wind, but animals disperse the seeds mostly by birds others and some insects.

Tropical species exhibit highly specialized ecological roles as for example living in different layers of the forest. Beside Orchidaceae, and Cactaceae the familie of Bromeliaceae has a high tendency towards endemism. Endemism is: “The occurrence of a species in a particular limited locality or region and are also rare” (UNEP 2007).

Endemism often is regarded as a predictor for extinction potential as low populations are vulnerable to inbreeding depression and reduction in survival. Small populations are also vulnerable to genetic drift (large variations in traits) and inter- species hybridisation having a negative effect on populations’ genetic pool (Butcher 2006).

But not all endemic plants are equally affected by anthropogenic activities (Ibisch 2006). So far we can distinguish between humid- forest and open dry- land species which can also be differentiated by their ability to react to environmental changes.

The forest species depend very strongly on their habitat as a result of an eon long competition for light, air humidity, living space and water in the forests. They need the shade of a closed canopy and receive water run-off from the foliage above. Forest canopy also provides humidity and produces needed substrates for the bromeliads.

Through timber extraction or land conversion the shade of the forest canopy is interrupted and bromeliads are exposed to the sun, exterminating their population. Fortunately, many of the endemism- rich humid forests and cloud forests, with the highest bromeliad diversity, are found in less accessible mountain areas and tend to be better preserved than lowland-areas.

In endemism rich dry- forests or open dry- land, (xerophytic) species are more used to environmental stress since they have a long term adaptation to periods of drought, high temperatures and exposure to the sun. Even some succulent adaptations of bromeliad species can be found such as the 'grey' Tillandsias. To them deforestation can be a problem but agricultural practices may have greater impact on a populations. In some regions where agriculture, settlements, and forest build up a mosaic landscape, the numbers of species even increased, profiting from a high diversity of niches and habitats. For example, in moderately disturbed tropical Andean forests, the percentage of endemic plant species is higher than in intact forests (Kessler 2001). Most endemics seem to be less competitive and need the creation of disturbed sites in order to prosper. Some saxicolous are related to azonal sites like rock outcrops that are seldom affected by land-use change and thus having good chances of persisting in natural habitat islands within a converted forest. It can be further argued that epiphytic living plants spread further than terrestrial (Ibisch 1996) though having a higher potential of persisting disturbance and resistance to extinction. This reflects that endemism (having a small range size) to a certain biotopes does not automatically mean a higher risk of extinction it seems rather to depend on their ability to react to changing growing conditions. Unfortunately can be said that "The assessment of the severity of the actual threat status of bromeliads due to missing data is in its infancy" (Ibisch 2006)

1.2.2 Utilisation

Bromeliaceae belong to the most popular ornamental garden or houseplants but only a few within this plant family have been cultivated for further production.

The bromeliads can be found in private collections of plant aficionados as well as in public collections of botanical gardens worldwide. These collections may be for educational, presentational, commercial use and have a high value for taxonomic research. So far about 60%-70% of the known species can be found in ex-situ cultivations of botanical gardens. There are about 6,000 hybrids and cultivars that have been developed by plant breeders. The most commonly grown bromeliads in cultivation

are in the following genera: Aechmea, Billbergia, Cryptanthus, Guzmania, Neoregelia, Tillandsia and Vriesea.

Although the pineapple is the most famous member of the family cultivated for food there are other members of the Bromeliaceae whose central leaves are eaten as vegetables, are used as medicinal plants or for their fiber texture. *Ananas comosus* and *Bromelia penguin* help against infections, rheumatism and thin the blood. The responsible agent for that is the Bromelain which is one of the rare substances extracted from bromeliads. The pharmaceutical utilization of bromelain ranges from treatment of infections, edemas to the use at jaw and abdominal surgeries. Bromelain is further used commercially as meat-tenderizer, for the treatment of leather, as antifreeze for beer, and as stabilizing protein-emulsifier in latex-colours (Bociulescu 2005).

In conclusion there are a lot of known uses but only few have been transferred from indigenous knowledge to westernized economy so that in the economic value of bromeliads as edible or pharmaceutical plants is generally regarded as low.

1.2.3 Bromeliads in International Policy and Legislation

Having a value as a trade good the bromeliad trade/market needs to be regulated in order to reduce the impact of habitat destruction and the harvest of wild species.

There already is a form of international policy as the U.S. Endangered Species Act of 1973/4 and the CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna). CITES is an international treaty ratified by 169 parties, providing guidelines for international trade on about 30,000 threatened animal and plant species (CITES 2006). The agreement's database of endangered plants and animals includes 7 *Tillandsia* species as "*Tillandsia harrisii*, *Tillandsia kammii*, *Tillandsia kautskyi*, *Tillandsia mauryana*, *Tillandsia sprengeliana*, *Tillandsia sucrei*, and *Tillandsia xerographica*" in its Appendix II (CITES 2006) which covers, by definition, "Species not necessarily now threatened with extinction, but in which trade must be controlled in order to avoid an utilisation incompatible with survival in their natural habitats"(CITES 2006). This "Designates all parts and derivatives, except: a) seeds, spores and pollen (including pollinia); b) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers; and c) cut flowers of artificially propagated plants" (CITES 2006)

The Convention on Biological Diversity (CBD) provides a frame of action for preserving global biodiversity, formulating their three major objectives in order to preserve major global ecosystem functions and services, as follows: “Conservation of biological diversity, sustainable use of its components and the fair and equitable share of its benefits” (CBD 2007). This international agreement was ratified by 189 countries obligating them to develop action steps in accordance with the CBD and to implement its principles into national policy and legislation.

The family of Bromeliaceae builds a genetic resource, according to the CBD meaning “Genetic material of actual or potential value” (CBD 2007). Exporting whole plants and/or parts of bromeliads from the country of origin for economic purposes falls under the convention’s policy toward the access to genetic resources and benefit sharing as defined in Art. 15 (CBD 2007). The benefits have to be equally and fairly distributed for current and future generations as they are vital for human health, security, and livelihood. An international working group was formed in order to monitor the progress. This form of international policy is implemented differently in every country so that trade and all commercial use of bromeliad species or their parts are coordinated differently. Management of wild plant species normally refers to some kind of licence which have to be enforced by the respective national authority.

1.2.4 Biodiversity Loss - Threats to Bromeliads and their Natural Habitats

The Neotropics contain a complex set of conflicts regarding the nature. Countries in Central and South America are characterised by poverty, a growing demographic pressure on all kinds of natural resources, a high extraction of natural goods for international trade, accompanied by a weak national conservation policy. Emerging problems are an exploitation of the natural resources, conversion, overuse and degradation of the land area, bio-piracy and social conflicts. The drastic ecological consequences are fragmentation, habitat loss, extinction of species, spread of pests and invasive species, erosion, and desertification.

“Biodiversity loss is seldom caused by private or government actions that directly seek to extinct species. Instead the loss of biodiversity is often a by-product of actions intended to accomplish a public good or to generate economic growth or return.” (The Society for Conservation Biology 2005).

In some regions agricultural practice includes burning of pastures, which may be natural habitat of bromeliad species but are regarded and treated as weeds (Ibisch et al 2005). Other species even suit as food for the cattle.

Tropical plants and, in particular, bromeliads are popular ornamental and indoor plants, due to their diverse and exotic appearance which increases bromeliads' value for world wide trade. The origin for world-wide trade may be one of the nurseries of bromeliads arising within the neotropical countries as for the supporting climate conditions, low costs and a growing market. This may offer a reasonable source of income for people in countries with limited economic alternatives. One problem with the establishment of a nursery for commercial purposes is that they require 8-10 years with the help of all legal matters for plant production without wild harvesting which implies an intensive investigation period. So still wild harvesting is a commonly used practice.

Another problem to all kinds of *ex situ* collection is a limited genetic diversity due to the fact that the natural evolution process in terms of speciation of species is not present. Such genetic diversity is the primary source for variation in morphological and physiological appearances of plants as well as for the genetic adaptability, which acts as a buffer against harmful environmental changes.

The irreversible loss of single genes or combinations of genes in genotypes, the so-called gene-erosion, is one of the major concerns of actual conservationists. A lot of collections are in need of refreshing their genetic and morphologic range of bromeliads, often resulting in the harvest of wild plants. An ecological consequence is the overuse and exploitation of known sites of certain bromeliad species. Especially affected are endemic species with a small population range size.

In tropical forests habitat change and overexploitation have been identified as the projected trends in most threatening processes of species endangerment (Groom/Gordon 2006).

1.2.5 Biodiversity Conservation -Conservation Status of Bromeliads

The World Conservation Union (IUCN) has included 151 bromeliad species (IUCN 2007 a) of different conservation status in their international Red List. There can be found scientifically valuable information on the taxa, assessment information, habitats, threats, and protection activities. The assignments to the IUCN threat status categories "Are not assignments of priority, but rather a reflection of our current judgement of how

great the risk of extinction is for species, given the best available information at present.” Unfortunately all of the included bromeliad species are endemic to Ecuador while all other species are neglected. Ecuador so far has been the only country to be able to assess their bromeliad diversity for this list which does not represent a realistic view of the bromeliad diversity of the earth.

Conservation activities can involve *in situ* and *ex situ* components. The conservation of rare species often requires the maintenance of an *ex situ*, or off-site, collection in addition to monitoring plants in their natural habitats. “Off-site” (or *ex situ*) work happens away from the plant's habitat.” On-site” (or *in situ*) work occurs at the plant's habitat (home in the wild). Both combined methods increase the plant's chance of survival in the wild.

The current most accepted conservation activities is guided by the ecosystem approach which integrates different actions in order to ensure major components of the ecosystem function and through viable goods and services.

In order to preserve certain biodiversity components and to enforce *in situ* conservation a system of protected areas is established what, according to the IUCN, is “An area of land or sea especially dedicated to the protection and maintenance of biological diversity and of natural and associated culture resources, and managed through legal or other effective means” (IUCN 2007 b). Until now about 44,000 protected areas have been established in the world, comprising an area of 13,630,616 km². IUCN has generated a system of protected area categories, differentiated by their management objective, varying from strict nature reserve/wilderness areas to managed resource protected areas, where people can live and manage their goods in a sustainable way (IUCN 2007 b). Taking into account the current habitat destruction rate and the discovery of many poorly known or unknown bromeliad taxa, there is an urgent need for identifying priority areas of well preserved vegetation for a detailed survey of bromeliads and related organisms. The preserving of habitats also is a major interest in order to preserve viable populations. Though not only species but also habitat conservation lies within the interest of every intention of species conservation.

In collections, typical *ex situ* techniques might involve the creation of living collections (either in soil or tissue culture), or long-term storage collections (e.g. seed or spore banks, or in liquid nitrogen as a bank of cryo-preserved material). Historically, *ex situ* techniques have been widely and successfully used to conserve plants of commercial value, but have been under-estimated in the conservation of wild plants. The importance

and use of *ex situ* techniques in conservation has increased over the past decade thanks, in part, to their recognition in the Convention on Biological Diversity (CBD 2007).

The private and public collections build up an important part of the conservation work. Botanical gardens were originally founded to host large collections of plants for research, as well as for the public to explore exotic or rare species. In regards to the current global biodiversity crisis, tasks and responsibilities are growing, especially since such institutions have a certain educational role. Botanical gardens can contribute to the general understanding of biodiversity, its values and threats, and thus create acceptance for conservation and related legislation. In addition botanical gardens hold an important portion of the world's genetic diversity by establishing seed banks, nurseries, and tissue cultures in laboratory test tubes for components of the global flora. The contribution to biodiversity conservation by botanical gardens may include:

Collection of plant material, identification of species, research (taxonomy), creation of accession database, establishment of germ-plasma banks to safeguard threatened species, intermediate cultivation for a later reintroduction in appropriate *in situ* habitats, provision of conservation relevant data to conservationists and the countries of origin, and proper documentation.

In this context vegetative propagation with pups as clones is to be favoured. And if genetic manipulation or hybridizing is used still species collection become more important in order to preserve a clean original genepool.

1.3 BROMELIAD SOCIETY INTERNATIONAL

The Bromeliad Society International is an international non- governmental, non- profit organisation whose purpose is according to their definition “To promote and maintain public and scientific interest in the research, development, preservation and distribution of Bromeliads, both natural and hybrid throughout the world, and to promote fellowship” (BSI 2005). BSI was founded in 1950 in the county of Los Angeles, California, in the United States of America. BSI's actual world headquarters is located at Selby Gardens, Sarasota, FL where also the Bromeliad Identification Centre (BIC) was created in 1978 building one steady and important part of the BSI.

BSI is the head organisation of 54 affiliated societies and of 1317 members all over the world (BSI 2006 a).

All membership is voluntary. Paying annual dues, members receive member services such as subscription to the *JOURNAL* of the Bromeliad Society International access to the

Seed Fund, certain online services and they have the right to vote within certain organisational matters.

Beside the *JOURNAL* and the BSI websites, the annual World Bromeliad Conference builds a major platform for the public presence of the organisation addressing all people being interested into bromeliad issues. The publication platforms are used to disseminate news on bromeliad taxonomy, cultivation, trade, and habitat information in the form of travel reports or anecdotes. Additionally information on official inter-organizational matters is also publicised, including the digest of the minutes of the annual board meeting, the treasurer's report, directories, calls for nominations, and election results. Contributors to the publications may not only be the BSI board but also include laymen, hobbyists, commercial growers as well as scientists

Bromeliad Society International currently can be regarded as the mayor authoritative body on all things related to bromeliads.

1.3.1 BSI Members

The members of BSI live in different parts of the world with a large proportion living in the USA and in the westernized countries in general. Personal motives of BSI membership may be the fascination for tropical plants and in particular bromeliads either from a scientific, horticulture or simply from an esthetical perspective. Some members even travelled to bromeliad habitats in neotropical countries thus being aware of certain ecological threats to the plants. Thus, a high botanical expertise and a certain ecological understanding can be expected. Their activities range from plant collecting, cultivating, trading, to academic research and some even are involved in botanical gardens or similar institutions. The voluntary engagement for bromeliads and for the society indicates a relatively high pro-social and pro- natural attitude, and thus also a certain code of ethics regarding of treatment of nature.

After some insight into the conservation status of bromeliads the capacity of the BSI need to be determined how they can opone a growing threat to biodiversity loss, ecosystem degradation and bromeliad extinction. The following abstract will show the theory and application of a management tool in order to get a detailed picture of the BSI situation and to generate the capacity to engage itself more actively into conservation of bromeliads and encourage people to ecologically sound behavior.

2 Method

2.1 STRATEGIC PLANNING

In order to develop the conservation strategy for BSI it is necessary to introduce strategic planning into the process. The definition of strategic planning varies, but essentially, it is a management tool that involves the following three elements:

Fundamental **decision-making** and action-planning to shape and guide an organization toward the **future**,

Preparing the best way to respond to the **environment**,

Focusing not only on the output (strategic plan document) but also the **process of reflection and communication**.

(Search for Common Ground 2007)

In this case the strategic planning for BSI is the process of developing a plan in order to reach the organisation's goal for preserving bromeliads, considering the board development, fundraising and volunteer management.

The first step is a situational analysis of BSI. Throughout the application of the SWOT-a management tool to analyse organizational strength, weakness, opportunity and threat and gain a more detailed picture of the organisation's situation and capacity is drawn.

The analysis of former concepts of such conservation actions as the formulated Conservation Goals and the Code of Conduct for Bromeliad Collectors and Growers of 1987 will show failures but also indicate potential for improvement.

The outcomes will suit as a basis to develop a conservation strategy with a more effective action and involvement of BSI in conservation. Throughout the development of an action plan there will be pointed out how BSI may reach its goal for more active preservation efforts and how the theory can be implemented. Therefore it is necessary to determine the competences, the time, financing, and location of priorities.

Last will be an introduction of an evaluation and monitoring system of the action program in order to be able to prove the efficiency and effectiveness.

2.2 INTEGRATING THE SWOT INTO THE ACTION PLANNING

SWOT is the abbreviation standing for strengths (S), weaknesses (W), the opportunities (O) and threats (T). The SWOT- analysis is an effective and simple planning technique which addresses the situational analysis as one essential aspect of many strategic planning processes. Originally the SWOT management tool stems from the business management literature. On the one hand it seeks to point out the outside opportunities and threats that may influence the existence of the organisation. Furthermore it may give some appropriate suggestions to face certain circumstances. On the other hand the internal analysis of the strengths and weaknesses of a business may shed light on certain actions that could be taken place to correct certain internal practices (Karppi et al 2001). In the same way for BSI, as a non-profit organisation, the SWOT management tool can be used in order to apply actions to fulfill its goal of conservation of bromeliads and their habitats.

The SWOT instrument seeks to highlight dominant and determining factors, both within and outside of the organisation, which are likely to influence the success, as well as to produce relevant strategic guidelines by linking the project to its environment. The SWOT analysis is part of the strategy formation as it is the assessment of strength, weaknesses, opportunities and threats to BSI. It intends to address the question of strategy formation from a two-fold perspective: from an *external* appraisal (of threats and opportunities in an external environment) and from an *internal* appraisal (of strengths and weaknesses in an organisation referring to attributes that measure internal capabilities). The difference between the two perspectives can be seen in the different degree of control obtainable within each.

The external environment (i.e. economic, cultural, demographic, political or legal trends and events) has a certain dynamic and an unrestricted nature which are largely beyond the control of a single party. Opportunities can be exploited and the effects of threats be mitigated. Internal factors should be more easily manageable for the organisation by building on strength and eliminating weaknesses (Suh/ Emtage 2004). The aim here is limited to the attainment of an overall picture illustrating the key issues the organisation will have to face.

The SWOT analysis shall be an integral part of the strategic management planning process. It is an instrument to formulate major aspects of the strategy while adjusting the organization's internal behavior to point out "...Necessary changes in its interaction

with the surrounding environment” (Karppi et al 2001). Here the SWOT can be seen as a decision support system.

2.2.1 Application of the SWOT

In the following some fundamental characteristics of BSI will be pointed out, as well as how BSI can achieve their goal or how it could be broadened.

In short the SWOT analysis is a tool which can be used for identifying an organization's strength, weakness, opportunity and threat. In the SWOT literature it is advised to carry out the SWOT in the form of a group meeting (Suh/Emtage 2004). Ideally, a group represents a broad range of perspectives.

2.2.1.1 External Analysis

The external analysis is the examination of an organizations surrounding, also called environmental analysis. There is a need to identify the opportunities and threats which come from outside the organization as for example changes in technological, social and ecological environment. The environmental changes are more or less given since the working forces are mainly exogenic. The organization observes or anticipates these changes and reacts with the adaptation of its strategies.

Procedure

It is advised to look for strategically relevant opportunities and threats. Then an attempt should be made to maximize the use from strengths and opportunities and minimize the loss from weaknesses and threats.

2.2.1.2 Internal Analysis

The internal analysis is the analysis of the organization throughout the internal look or so called introspection. The strength and weaknesses refer to the organization itself. Strengths and weaknesses are produced by the organization itself and are characteristics of the organization or rather results of the organizational processes.

Procedure

At this point strengths and weaknesses are sought. It is advisable to adopt moderation techniques and/or form a group consensus. Also the application of grouping, structuring, weighting or of other creative techniques, are promising ways to conduct a kind of brainstorming.

2.2.2 Member Survey

It lies outside the capacity of BSI to hold a group meeting with all BSI members because they are spread all over the world, according to a digital version of the SWOT basic questions has been created. The questionnaire has been sent out via internet (see Appendix 2). Board members were characterized to be more involved and committed to their volunteer position within BSI than normal members though having more interest in organisational management. Therefore the questionnaire was sent out only to board members. The first version did not have any response. Later the current president sent out another call for involvement into the strategic planning process. As of yet three people have filled out and returned the survey (see Appendix 3). Included answers could have been used, especially in identifying institutional strength, weaknesses, opportunities and threats conducting the SWOT analysis. Due to the low participation rate of and low representation of the BSI members' opinion however the answers of the questionnaire are not further analyzed.

Also under analysis are the former conceptions as the BSI Conservation Goals and the Code of Conduct of 1987 for their content and formulation. Special focus here shall be on the effectiveness, feasibility, the actual relevance of the concepts and how they enabled BSI's conservation activities. Their evaluation may show possibilities for improving BSI's capacity to concretely advocate the conservation of bromeliads. Outcomes will be used as a basis for the formulation of useful tools for a more efficient involvement of BSI into conservation of bromeliads.

3 Outcomes

In the following table the outcomes of the SWOT analysis are presented in the internal and external dimensions of the Bromeliad Society International. The table displays BSI characteristics which generally describe the capacity and outreach possibilities of the organization to foster bromeliad conservation and thereby achieve a part of their mission.

Internal Analysis	
Strengths	Weaknesses
<ul style="list-style-type: none"> <i>a) Organizational Character</i> <i>b) Internal efforts for conservation</i> <i>c) Networking</i> <i>d) Public relation</i> <i>e) The Seed Fund</i> <i>f) Bromeliad Identification Center</i> <i>g) Funds</i> <i>h) Bromeliad specific expertise</i> <i>i) Membership structure</i> 	<ul style="list-style-type: none"> <i>a) Membership development</i> <i>b) Relation to affiliated societies</i> <i>c) Organizational capacity</i> <i>d) Conception of former conservation strategies</i> <i>e) Global visibility</i>
External Analysis	
Opportunities	Threats
<ul style="list-style-type: none"> <i>a) Growing awareness of environmental problems</i> <i>b) Greater conservation efforts worldwide</i> <i>c) Expanding networking</i> 	<ul style="list-style-type: none"> <i>a) Shrinking existence of bromeliad diversity</i> <i>b) Technological change</i> <i>c) Demographic change in typical membership countries</i> <i>d) Growing competition</i> <i>e) Global economic development</i>

Table 1: BSI characteristics analyzed due to SWOT analysis

3.1 EXTERNAL ANALYSIS

3.1.1 Opportunities

- a) Growing awareness of environmental problems*

The loss of biodiversity and the anthropogenic destruction of the environment is no longer just an issue of conservationists since it is already affecting the well-being of thousands of people as can be seen with the growing occurrence of hurricanes, twisters, tsunamis, floods, and extinction of species. While being faced with negative effects of environmental destruction mankind is becoming more aware of its position in the global ecosystem and is beginning to take responsibility for its destructive behavior. This growing awareness is reflected by the international scale meetings of politicians and other decision makers in order to find solutions for the current precarious situation. Specialized scientists have researched and provided conservation relevant data. The urgency of saving biodiversity will drive the need for sound scientific information, expertise, and the need to translate science into practice wherein BSI may provide an important contribution on bromeliads. Furthermore, a growing interest and presentation of environmental problems can be found in the media as a platform for the exchange and spread of information. More people than ever can get the information they need throughout the internet which is still regarded as a growing branch. As more information is already available, interest in selected information from highly reputable, academic sources is increasing, along with a greater demand for scientific advocacy. Through BSI's public presence in the Internet and their *JOURNAL* the organization has the possibility to take its part in the conservation of the world's flora and fauna. It may introduce the topic of environmental problems in general or include precise information and news regarding threats to bromeliads and their habitats.

b) Rising conservation efforts worldwide

During the last three decades many international scale conservation efforts could have been observed such as the establishment of the CITES in 1972, U.S. Endangered Species Act of 1973, the World Summit of Rio de Janeiro in 1992 with the Convention on Biological Diversity, the Kyoto Protocol on climate change in 1997 and their references to implementation on a national scale, just to name a few.

c) Expanding networking

Currently a growing trend can be observed of scientists networking in order to form platforms for target or topic oriented knowledge exchange. Networking builds the basis for providing all respective parties with reliable data and knowledge.

3.1.2 Threats

a) Shrinking existence of bromeliad diversity

Bromeliads are the major subject of information management and services conducted by BSI. The ongoing anthropogenic caused loss of biological diversity and the destruction of habitats is a world wide concern. Since the loss and destruction also occurs in areas with high endemism and diversity the effects have even greater impacts. In the Neotropics land conversion and agricultural practices are regarded as the most significant cause of habitat destruction and therefore the greatest threat to bromeliads in their natural habitats. Other species, especially those of the humid forest, are more strongly affected by timber harvesting because the loss of the forest canopy results in the loss of shade, nutrients and water.

Further, bromeliads belong to the family of most interesting plants available to the hobbyist and decorator so that a certain value as a trade good can be identified. The trade index of bromeliad species is not increasing much, but there is still a representative demand for wild bromeliad species. With the current rate of hybridization further wild plants are required to refresh the genetic pool.

In addition to artificially propagated plants, one may also find wild bromeliads on the market. Harvesting of wild species in the natural habitats is already negatively affecting populations, which are losing their genetic diversity and most likely their viability. Overexploitation of populations and sites is one major threat to bromeliad species in the wild.

Additionally, the inappropriate cultivation conditions and current cultivation trends, such as gene- manipulation and the hybridization of species, to achieve certain shapes of leaves and flowers or coloring, usually lead to genetic erosion. The limits of small bromeliad collections of hobbyists/decorates, as well as in big commercial collections also increase the threat of genetic erosion.

Bromeliad habitat destruction, certain cultivation techniques, uncoordinated harvesting and trade are all current threats to the organization's major objective.

d) Technological change

According to the latest membership survey the *JOURNAL* has been the most important reason for BSI membership. But currently a tendency towards digitalization of scientific information and research has been identified. With the establishment of the website, BSI successfully opposed the access to this electronic information. The BSI's

internet presence, with such ongoing projects as the 50-Year-Index and the Journals, is expanding. Current members probably prefer the printed version of the Journal, but a younger more computer comfortable generation has been identified as a potential member target group. The trend in declining subscription rates to the *JOURNAL* could reduce the BSI's subscription revenue.

e) Current population development

Although the world population is growing exponentially many westernized nations have to face stagnating or even declining birthrates. In these nations there will be an increasing percent of elderly people. In the long run, public and private organizations will have to adjust the profiles addressing their target group.

f) Growing competition

Since the profile of BSI is not adjusted to address a broad audience, other plant oriented organizations represent competitors for potential members and funds. Growing competition and university budget constraints will fuel the demand for new sources of research funding.

e) Global economic development

Within the next decades the economic development may lead to further restrictions of middle class financial stability. One possible outcome could be a shrinking willingness or capacity of members to give conservation donations.

3.2 INTERNAL ANALYSIS

3.2.1 Strength

a) Organizational Character

BSI has already enjoyed a very successful history of 50 years of existence. During that time it has gained a world wide solid reputation, which is also reflected in the diverse and international membership of affiliated societies and people. So far BSI is one of the major groups addressing bromeliad issues in science and horticulture worldwide. It serves a wide set of interests and local needs. BSI represents not only its affiliated local organizations, but also many direct members, all being in some way interested in bromeliads and providing platforms to exchange and expand knowledge and information of these plants.

b) Internal efforts for conservation

Already in 1987, the standing committee of BSI has formulated a Code of Conduct and several conservation goals for collectors and growers in order to:

- “(1) Advocate the conservation of bromeliads in nature and their habitats.
(2) Establish and monitor the effectiveness of a code of ethics defining the behavior of growers and collectors that may affect the well-being of wild populations of bromeliads;
(3) Represent the society in conservation matters.”

(BSI 2007)

The statement of conservation goals was endorsed by the Board of Directors in 1987. The respective documents have also been published, (Journal 30:207-209) but so far none of the objectives nor the Code of Conduct were implemented and hardly been notified by current members. Former conservation endeavors included the organization of a scientific Seminar on bromeliad taxonomy, diversity, and environmental threats of BSI, in collaboration with the Selby Garden's Bromeliad Identification Center during the Bromeliad Society International World Conference in Florida, 2002. Further, the introduction of the topic of conservation provoked an email discussion mostly on the worth of *ex situ* collections for the preservation of genetic resources. However, a certain interest of the members for conservation issues has been identified. Still BSI is confronted with the destruction of their flagship specie the bromeliads. The urgency for a practical framework for bromeliad conservation is growing as members face and report destruction of the habitat, extinction of bromeliad species, and unsustainable management. Because of this, the current chairman for conservation called strongly for a more active engagement of BSI and a proper conservation strategy in order to define possible actions to be undertaken by members and the society (Ibisch 2006). A digital version of the conservation corner for the BSI website has already been created, but is still in the implementation phase.

c) Networking

BSI has been able to gain 56 bromeliad societies from all over the world as affiliated organizations. The Affiliates receive one edition of the BSI *JOURNAL* and keep in contact by BSI newsletters.

The last membership survey shows that some members of BSI live in remote areas, without access to a local bromeliad society and outside the natural habitat regions of the bromeliads, but still want to gain information on bromeliads. In all, biodiversity conservationists and BSI members are a diverse and geographically distributed community who benefit from exchanging information and networking with colleagues and experts.

d) Public Relation

The *JOURNAL*

The Bromeliad Society International *JOURNAL* is published bimonthly in Orlando, Florida by the organization itself. It disseminates all official business matters, including the minutes of the annual board meeting, the treasurer's report, directories, calls for nominations, and election results. Additionally, the *JOURNAL* entails texts in contribution to education and research information. Most articles are about bromeliads, provided by scientists and other plant connoisseurs including travel reports, plant descriptions, cultivation and trade issues, news, and announcements for upcoming events regarding the BSI and/or bromeliads. According to the last membership survey (BSI 2006 b) the *JOURNAL* is the main reason for membership in the BSI. The members expressed their satisfaction because for some members living in remote areas, without contact to local bromeliad societies and/or natural habitats, it is the only source to get informed about the plant species. The content of the *JOURNAL* is rather scientific. Some members expressed their wish to include more novice information for inexperienced bromeliad growers. In this *JOURNAL* it is possible to integrate conservation issues as a constant part of an edition, if available under the heading of the so called "Conservation Corner". With a periodic or constant reoccurrence of conservation topics, the impact on the people addressed will be more intensive. It is also important to provide interested members with breaking news on the conservation issue. Maybe it is even possible to animate and motivate the recipients to start conservation activities in their local society. In the *JOURNAL* advertisements of plant nurseries and sellers are also included. External participants may become dedicated to the Code of Conduct of BSI. Consideration could also be taken to refrain from advertising for businesses whose legality and ethics are in question, in respect to management of their plant products.

Online Presence

BSI also takes on a public presence in the internet through its own website at www.bsi.org. The BSI website can be accessed for free. BSI's website digitally represents society's and bromeliad aspects online, addressing the general public and recently interested people. It provides basic information to every person interested in the society, bromeliads, publications, affiliates, and different events, but it could be expanded for members of BSI with some additional services, e.g. 50-Years index, former editions of the *JOURNAL*, and the database. According to the latest member survey (BSI 2006 b) respondents most often cited pictures, the list of cultivars and hybrids, back issues of the Journals, links, and the Seed fund as the most appreciated services.

The online presence of the BSI can be an important tool to present the topic of conservation of bromeliads and their habitats. The internet is still growing as is the demand for information and knowledge. The website is definitely one important means in competing with other information providers as the world wide trend of digitalizing information continues. BSI is a link one usually comes across if searching for any information on bromeliad plant species. Its reputation and commercial free presentation in the internet maintains its image as a reliable source of information on bromeliads. With the inclusion of the information under the link "Conservation Corner", readers can inform themselves about conservation of biodiversity and bromeliads and how their life as bromeliad connoisseur is affected by it.

World Bromeliad Conference

The annual World Bromeliad Conference of BSI is an event of great interest for BSI members. A lot of people show interest in these kinds of meetings, where they get together with other plant enthusiasts to listen to experts and here about bromeliads news.

d) The Seed Fund

The Seed Fund is an appreciated and successful member service. In the sense of conservation, the Seed Fund is an integral part of BSI conservation activities. Donations of seeds are accepted from everybody, if appropriate labeling is used, so that a diverse offer of seeds can be provided. Seed orders can only be made by BSI members.

It is a good source for providing members with seeds which can be grown, cultivated, and propagated in the members' collections. Even rare and uncommon species can be

received. Furthermore the Seed Fund may function as a seed bank, refilling and renewing itself from members and other donors. One problem with this BSI provision is the question of appropriate labeling of the donated seeds and the uncertainty of cross pollination in the cultivations. So far the Seed Fund can accept orders by mail. A possibility to improve the Seed Fund service would be to create an additional online version of it.

The more offers of bromeliad species that are available from artificial propagation, the further the demand for illegal harvesting sinks, conserving the wild populations.

If a person does not have the patience or facilities to grow plants from seed, BSI should consider publishing a list of reputable dealers and offering online plant sales/exchange for members. It also enlarges the member service and at the same time conservation action on the side of BSI could be implemented. All involved parties should be evaluated for their adherence to the BSI Code of Conduct, and should also trade only appropriately labeled plants.

e) Funds

The BSI is receiving prescription revenues and has established different funds for sponsoring special activities. Unfortunately the financial capacity of the funds is generally very low.

f) Bromeliad Identification Center

The Identification center at Mary Selby's Garden is one major partner receiving direct funding which enables direct scientific expertise from highly specialized experts on Bromeliads. Data and information from the garden can be seen as a reliable source, and their genera gallery can especially be seen as a useful tool for identification of plants of interested Internet-users.

g) Bromeliad Specific Expertise

Bromeliads are the common interest of the members which usually have different interests in the Bromeliaceae family. Members may come from scientific, hobbyist, or commercial fields, all having a certain knowledge on ecology, taxonomy, and or horticultural background, which is an important source in order to conserve the family of bromeliads and their habitats.

h) Membership

The global structure of BSI membership means the service of broader and more varied needs and interests. The community of commercial growers, hybridizers, hobbyists and horticulturalists are becoming a greater source of the collection of various genera, thus they are preserving the bromeliad genetics. Membership is the essential resource of the Bromeliad Society International.

3.2.2 Weaknesses

a) Membership Development

The development of BSI membership is definitely a significant concern. According to the last membership survey, the 52.9% of the members were over 56 years old (BSI 2006 b) and there is a trend for further gentrification. There are very few new members, especially in younger age groups.

One other problem is, that there is a considerable number of BSI members who mentioned that they did not even know about the website. Others expressed that they do not have online access or are not comfortable with this kind of media maybe due to their age. Therefore they can not approve of the online services as.

Another problem for the membership development is the failure to manage missing membership fees. Normally not paying, results in the exclusion of the members. Some people noted in the survey that they did not realize they were no longer members of BSI, because they did not receive any kind of reminder to pay their fees and therefore forgot about it.

b) Relation to Affiliated Societies

The last membership survey shows that the contact between the chairman of affiliated societies and the societies has been unsatisfactory and the affiliated societies' issues were ignored.

c) Organizational Capacities

Limited Budget

BSI gains little income from the membership fees and funding. Existing sources of revenue are not sufficient to sustain new programs and expand services.

Limited Workforce

The organization has no steady staff and is run by volunteers, dedicating their spare time to the beurocratical tasks of the organization's operations. Consequently, the implementation of actions will be conducted by a limited workforce with very little time.

Limited Facilities

The BSI also has no possibility for obtaining further funding for direct conservation measures. So far the Identification Center of Selby's Royal Garden in Sarasota, Florida may serve as the only resource of BSI indicating potential for conservation work, by providing botanical and taxonomic expertise.

d) Conception of Former Conservation Strategies

Previous concepts to actively involve the organization into the preservation of bromeliads and their habitats were created and published in 1987. Since then the concepts lacked implementation strategies and even acknowledgement of the BSI members. Currently the principles need to be updated (also see 3.4)

e) Global Visibility

BSI is well regarded among existing members and supporters in the U.S., but it has yet to develop more widespread recognition and demand for its products and services outside the U.S.

3.4 EVALUATION OF THE FORMER CONCEPTIONS

The BSI conservation committee had already formulated a code of conduct and some conservation goals/objectives in 1987, which had been endorsed and published in the *JOURNAL* (Volume 30, 207-209) by the Board of Directors in the same year.

The introduction of this paper states general opinions and explanations of the reason and origin of the formulation. In the following sections there will be an analysis and some critical suggestions for improving the content and effectiveness of the Code of Conduct.

3.4.1 Analysis of the former Code of Conduct for Bromeliad Growers and Collectors of 1987

It is mentioned in the introduction the Code of Conduct of 1987 that there is a difference between the American Orchid Society and Cactus and Succulent Society, concerning commercial scale collecting. As opposed to other plant family organizations, the BSI included no moral objection to commercial scale collecting because, at this point, a sufficient amount of desirable bromeliad species and no threat to them has been assumed although a possible near future change in this assumption has been included.

The Code of Conduct includes four main points the first of which deals with the collection of wild plants, which includes the general conduct, professional courtesies and responsibilities in the field. Secondly, there are points of maintenance of collections (private, public, and commercial) comprising of cultivation, management, trade, and documentary tips. Thirdly, the code implies some recommendations for bromeliad societies and clubs. Fourthly, it includes recommendations for show committees and judges.

In order to anticipate the actuality of conservation of bromeliads we need to argue that there is now more information available on the conservation status of bromeliads, though it is still relatively little. But we have to take in account that CITES has put 7 *Tillandsia* species in their Appendix II. Furthermore, the IUCN Red List for Endangered Fauna and Flora includes 151 bromeliad species of different threat status. As the popularity of bromeliads and the destruction of natural habitats increases, a further increase of the threat status can be assumed, forecasting an enlargement of the CITES and the Red List of Threatened Species.

But one critical point of the Code of Conduct is that, beside the one time publication in the *JOURNAL*, it was not implemented in any further organizational operations.

The Code of Conduct includes very necessary advice and ethics to the reader. Therefore it can be a useful tool to impact the conservation strategy. It covers diverse aspects and responsibilities. It presents the members a set of principles of conservation oriented behavior and also recommends internal procedures in the context of conservation

Implementation

In order to implement the code it is prudent to send out the Code of Conduct to all potential members during the subscription process to be acknowledged and signed when becoming a member. Current members should receive a version of the Code of Conduct

during the renewal process of their membership within the upcoming period. Also it may be good to send out a digital version as well as by mail, in written form, since some members do not have steady internet access. This way, it can be assured that everybody has been informed and will act in accordance with a widely accepted code of ethics. It may be wise to consider introducing expulsion processes for members verifiably not abiding by the organization's codex.

For the new version of the code of conduct please see the appendix.

3.4.2 Analysis of the Conservation Goals of 1987

The BSI conservation goals were:

1. **Conservation of Bromeliads:** To enhance the survival and maintenance of genetic diversity of all Bromeliads throughout the world, both in the wild and in cultivation.
2. **Data Collection:**
3. **Research:** To promote and support much more basic research on the Bromeliaceae than is currently being undertaken. Such research should include basic taxonomy, and ecological, horticultural, and physiological studies.
4. **Public awareness of the need for conservation:** To develop an awareness of plant species and habitat conservation through published books, scientific and popular articles, films and other visual media, and symposiums and meetings and their published proceedings.
5. **Development and promotion of conservation strategies and special projects.**

Goal 1: Conservation of bromeliads

Objective: To ensure the survival and maintenance of genetic diversity of all Bromeliads throughout the world, both in the wild and in cultivation.

Analysis

The goal shows the BSI fundamental perception of the necessity of engagement for conservation.

The objective indicates the BSI's consciousness of the importance of the genetic variety of bromeliad species and populations, both in the wild and in cultivation. Viability of plant species and populations is supported by a higher reproduction rate of reproduction

capable descendants and a higher possible combination of genes providing the possibility for useful adaptation to a changing environment.

The formulation of this goal is questionable because the BSI may not be able to ensure the survival and maintenance of bromeliads throughout the world, both in the wild and in cultivation because it is a small organization with central focus on bromeliads, where conservation is just one part of a more complex purpose of the society. External threat factors such as fire, habitat destruction, economical and political situation can hardly be addressed and even less likely be prevented within the scope of the society.

Goal 2: Data collection

Objectives

a) To establish checklists of bromeliad species occurring in the wild for all countries and determine the degree of threat facing each species from either habitat destruction, or collection, or both.

Analysis

The objective indicates the need for further gathering of detailed information on the threat status of wild bromeliad species since, until now, little or insufficient data is available. For example, the IUCN Red List of Threatened Species comprises only bromeliad species of Ecuador; whereas Ecuador has been the only country to provide information- unfortunately it seems the list was insufficiently researched, as only the bromeliads being endemic to Ecuador were introduced.

The threats to ecosystems, and in particular bromeliads, are likely to be the same in other countries of natural bromeliad habitats such as in Bolivia or Colombia, too, but have yet not been assessed.

The objective only includes threats in form of habitat destruction and collection, whereas more kinds of threats can be assessed for example including global change.

b) To prepare a record of important areas that already are protected legally, e.g. national parks and protected areas, and lists of bromeliad species, that are, in theory, safe within them.

Analysis

The objective to enlarge the knowledge of not only the threat status, but also the protection status of bromeliad species seems to be reasonable.

c) To establish lists of areas of great species diversity or high endemism that should be protected by conservation organizations, governmental organizations, or by other means.

Analysis

This objective is formulated as BSI considers assessing all areas of high species diversity. The society, mission includes the aspect of “promoting and supporting preservation,” but conservation is not the main issue of BSI. Furthermore, it is problematic to assess all bromeliad species of the wild because this work is very complex and time consuming. BSI only has volunteer members, dedicating their spare time, resulting in a limited source of workers for the task. Noteworthy is that there are a lot of other organizations concentrating on the assessment of biodiversity and valuable regions that are worthy of being supported. Such organizations already have ongoing projects in which BSI can act as a supporter.

It may be better to change the formulation of this objective to the listing areas of great bromeliad species diversity or high bromeliad endemism. The collected data should be provided to decision makers and other conservation organizations.

d) To prepare a record of bromeliad species that are already in cultivation in botanical gardens, or in private and commercial collection.

Analysis

With this objective BSI wishes to express the intent to record all bromeliad species in cultivation in order to know how many are potentially ready for seed banking, require other *ex situ* measures, or which need to be cared for in their habitat.

e) To prepare a record of those species already being artificially propagated and grown successfully in cultivation.

Analysis

This objective indicates that in collections some bromeliads do not grow that well since there is limited information on the cultivation needs. Species successfully grown in cultivation by artificial propagation can and should be promoted by BSI.

f) To prepare lists of species that should be propagated

- (1) Those which are of value in any sense.
- (2) Those which could take the pressure off wild populations
- (3) Those which could be used to increase the world populations

where these are small

Analysis

As a product of the data provided throughout former action steps the BSI wants to be able to establish a list of bromeliad species to include species for which propagation is regarded as useful, those that may have economic or other value, and those with potential value in the future with commercial value or as a trade good, etc. Further, the propagation of species occurring in the wild is threatened, especially by illegal harvesting or habitat destruction. The promotion of propagation in the sense of conservation initiatives is also regarded as useful to stock degraded populations.

Point (1) and (2) state the intention to propagate bromeliad species being threatened but still valuable and provide the basis for a sustainable use of bromeliads. Point (3) should be regarded critically because a small population does not automatically mean a greater threat of extinction.

Solution

Maybe it would become clearer if changing the formulation as follows:

To establish a list of species of which propagation should be promoted:

- (1) Those which are of value in any sense.
- (2) Those which could take the pressure off wild populations
- (3) Those which could be used to increase the world populations where it is possible and necessary.

Goal 3: Research

Objective: To promote and support much more basic research on the Bromeliaceae than is currently being undertaken. Such research should include basic taxonomy, and ecological, horticultural, and physiological studies.

Analysis

A lot of BSI members have a scientific background which binds them to BSI as it provides information on Bromeliaceae as well offers the possibility to publish news on these species. The *JOURNAL* as well as the website can be used as a platform for exchanging information. It should be mentioned that according to the last member survey of 2006 some people noted the *JOURNAL* to be too scientific by focusing on taxonomy and lacking layman or novice information on cultivation of bromeliads. But only conservation relevant, target orientated, scientific data can be used as a source and argument for any reliable conservation attempt. So one way to enhance conservation

targeted research on the Bromeliaceae could be to raise the awareness of the current and missing knowledge. Research can also be seen as the foundation to data collection so that goal 2 and 3 may be taken together into one aspect.

Solution

New goal: To promote research and data collection

Goal 4: Public awareness of the need for conservation

Objective: To develop an awareness of plant species and habitat conservation through published books, scientific and popular articles, films and other visual media, and symposiums and meetings and their published proceedings.

Analysis

Raising the awareness of the public is definitely one of BSI's major possibility. The society has publication platforms, such as the *JOURNAL* and the website, for spreading information directly to all people interested in the conservation of bromeliads. In the sense of raising awareness, the first step in implementing these ideas was the establishment of a conservation corner on the BSI website, where members and other interested people can find relevant information on conservation matters, as well as hints for further information provided on other pages.

The BSI World Bromeliad Conference is very popular among the members and therefore can be seen as a strength of the BSI member services. The conferences can be a good platform for spreading and discussing conservation matters of bromeliads on a broader scale. Additionally the affiliate societies can contribute their share by incorporating this issue into their meetings.

One objective, aside from developing awareness, is to inform people about conservation of Bromeliads by disseminating sound information to interested people, scientists, and especially decision makers.

Goal 5: Development and promotion of conservation strategies and special projects.

Objectives:

a) To promote the conservation of areas of great species diversity or high endemism.

Analysis

This objective recognizes the conservation of special areas, as for example, protected areas where great species diversity and/or high endemism occurs, often accompanied by environmental degradation. BSI emphasizes the fact that they can promote these conservation efforts.

b) To prepare and circulate as widely as possible a “Code of Conduct for Bromeliad Growers and Collectors,” the main aim of which will be the further protection of species in their wild habitats.

Analysis

The Code of Conduct had been prepared by a previous conservation committee and had been endorsed by the BSI board, along with the given conservation goals and objectives, all of which was published in the *JOURNAL* (BSI 1987). Until now it has not been implemented and some members were not aware of the existence of such a paper. As it is now nearly 20 years old, the former Code of Conduct needs to be evaluated and updated. Another improvement would be its implementation by distributing it among the BSI members and asking for their signatures, as an acknowledgement of the internal rules. The signing of the code should be a pre- condition for membership.

c) To review the operation of the Convention on International Trade in Endangered Species (CITES) with respect to the international trade in bromeliad species and to recommend changes that would make its implementation more successful and more effective for conservation.

Analysis

This objective expresses the BSI’s recognition of the CITES as an important agreement to control the trade of endangered species. The species included in the Appendices of the CITES were included due to their current threat status and commercial value. Precondition to fulfilling this objective would be the collection and analysis of reliable information regarding the conservation status of known bromeliad species. Another point would be the comparison of the threatened species with the species included in the appendices. The provision of updated data to decision makers is definitely one potential of BSI.

d) To encourage the artificial propagation of bromeliad species, especially among commercial growers and in the countries of origin of the wild species, in order to protect those plants remaining in the wild.

Analysis

The artificial propagation definitely is one way to take off pressure caused by illegal harvesting of wild species in the countries of origin, and so helps to conserve the existing populations. To promote artificial propagation in this sense would mean the propagation of bromeliads in existing cultivations, or in places where it can be assured that relevant genetic material comes from reliable, artificially propagated sources. Many bromeliad cultivars use hybridization for growth, color, or shape of leaves or flowers. From the point of conservation hybridizing is not favorable because it reduces the gene pool and continuously mixes the original genetic information, thereby losing the source of wild/natural species. The BSI Seed Fund can be regarded as one strength and opportunity to conserve bromeliads.

e) To promote other, more specific, projects that may be brought to the attention of the committee through its wide membership, and by others

Analysis

The intention to promote is well formulated, which can also be seen as an intention to help other ongoing projects, whether it be providing expertise, funding, or BSI grants for research initiatives.

3.5 CONCEPTION OF THE NEW CONSERVATION STRATEGY

With the help of the SWOT analysis, the evaluation of the former concepts a new action plan can be created to address the BSI's capacity to preserve bromeliads. This plan will include actions to build further on the organization strengths, to remedy the weaknesses, to optimize the opportunities and to minimize the effects of threats.

The actions to be undertaken can be deduced from the following four principles of strategic action planning, based on a SWOT analysis: "*Build* on strengths, *eliminate* weaknesses, *exploit* opportunities, *mitigate* the effect of threats" (Dealtry 1992: 2).

A systematic set of principles and methods has been developed in order to establish a relationship between BSI's internal processes and its environment, a key task for strategic management

The so called Strategic Action Plan contains a set of activities, some of which link strengths and opportunities, while others are designed to compensate for weaknesses or counteract threats (European Commission 1999)

In order to form a conservation strategy it has been important to formulate an overall goal relating directly to the mission statement and vision of conservation at the BSI, describing an optimal condition for people and bromeliads. In the further process, with the exception of one goal, nearly all previous goals of 1987 have been changed. The new goals and objectives are devices to improve the organization's capacity to meet the growing need for bromeliad conservation, to provide current conservation knowledge, and to handle further obstacles. In order to make implementation of the strategy possible, different activities are required to achieve the strategic objectives, goals and overall goal.

The action plan may be conducted in three phases. Phase I is optional, but necessary for a structural change of the organization in order to sustain a long term conservation of bromeliads. Phase II may enable BSI to implement the strategic action plan. Phase III gives the organization the possibility to actually enhance bromeliad and habitat conservation efforts. In order to monitor the progress of the implementation and in order to adapt to new circumstances or unexpected events, the preparation of an annual evaluation report has been proposed. Further responsibilities and a time frame for actions are included (see appendix).

The financial management section is actually not relevant here since this concept focuses only on the textual and thematic realization. But it can be remarked that in terms of personal costs there will be little extra expenses because the BSI has dedicated volunteer officers and longterm conservation activities might be financed through the proposed Conservation Fund.

3.5.1 Conservation Strategy for the Bromeliad Society International

3.5.1.1 Strategic Action Plan for Bromeliad Conservation

MISSION STATEMENT

The purpose of this society is to promote and maintain public and scientific interest in the research, development, preservation and distribution of Bromeliads, both natural and hybrid throughout the world, and to promote fellowship.

OVERALL GOAL

The overall goal of BSI is to promote and maintain public interest in and scientific knowledge on the conservation of bromeliads and their natural habitats throughout the world.

VISION

Our vision for the future comprises a world where people regard BSI as a relevant organization of bromeliad interested people holding a leading position for the study, information transfer, and conservation of the plant family Bromeliaceae.

Phase I: Changes in intra-organisational management and public performance

GOAL 1: TO IMPROVE ORGANIZATIONAL REPUTATION AND CAPACITY

The BSI is recognized as the world's leading authority in bromeliad issues and the organization holds the organizational capacity to manage its membership, publications and conferences, delivering high quality, integrated, and effective products.

Objective

a) To develop a strong identity, messaging, and promotional activities that will strengthen the BSI's visibility and reputation

Activity 1: Clarify the BSI's identity and develop a compelling message

Activity 2: Create a new look for the BSI's identity

Activity 3: Marketing plan for the BSI products and services

Activity 4: Transmit the message across the BSI's entire product line and membership outreach efforts

b) To develop and maintain an attractive suite of membership benefits

Activity 1: Create and maintain bromeliad plant exchange

Activity 2: Publish the Journal in time

Activity 3: Diversify content of magazine

Activity 4: Create and offer online order seed fund service

c) To maintain, expand and diversify membership

BSI would like to expand the membership of bromeliad professionals throughout the world because a larger membership is more effective

Activity 1: Develop a membership development plan

Activity 2: Intensify contact with affiliates

Activity 3: Automate the reminder mail for people who forget to renew their membership

Activity 4: Promote the education of young and inexperienced Bromeliad growers

Activity 5: Define and co-operate with commercial growers

(Get external advertisement in form of tags with BSI direction on commercial plants for member recruitment)

d) To improve the layout of the website

Activity 1: Include more illustrative pictures

Activity 2: Include more interactive tools

Activity 3: Use more attractive colors

e) To increase communications and collaboration among researchers

Activity 1: Develop and maintain an open Bromeliad Discussion forum on bromeliad issues

Activity 2: Appoint/publish direction of experts to be contacted concerning special bromeliad topics

PHASE II: ENABELING BSI TO BECOME A CONSERVATION ACTOR

GOAL 1: TO PROVIDE THE PRE-CONDITIONS FOR THE IMPLEMENTATION OF THE STRATEGIC ACTION PLAN

Objectives

a) To prepare internal management plans

Activity 1: Prepare executive operational plan including revenue, expense targets for actions, and responsibilities and structural costs to guide decision making and implementation of the plan

Activity 2: Prepare section plans (each BSI section will develop its own work plan to implement activities consistent with this plan and appropriate to the section's needs)

Activity 3: Annually evaluate and monitor the progress of the strategy, include a report in the official board meeting

Activity 4: Adapt the plan to current conditions/achievements

Activity 5: Strive for the financial independence of all BSI programs

b) To establish and maintain a Conservation Fund for conservation activities

Activity 1: Create a Conservation Fund for conservation activities of bromeliads

Activity 2: Appoint fund raiser /committee

Activity 3: Prepare and implement a fundraising plan

Activity 4: Put donation button on website

Activity 5: Include the Conservation Fund in the membership application formular

Activity 6: Appoint the conservation committee of BSI for acceptance on applications for grants and funds

c) To implement the “Code of Conduct for Bromeliad for BSI Members” the main aim of which will be the further protection of species in their wild habitats.

Activity 1: Approve the new version of the Code of Conduct for BSI members

Activity 2: Include the new version of the Code of Conduct in general

application/renewal form for BSI membership

Activity 3: Assess and recruit commercial growers and advertisers mentioned in the BSI publications to ratify the code of conduct (eventually reject non-signers)

PHASE III: BSI AS A CONSERVATION ACTOR

GOAL 1: TO PROMOTE RESEARCH AND DATA COLLECTION

a) To promote and support more conservation targeted research on Bromeliaceae. Such research should include the assessment of threats, conservation, protection status and ecological role in the habitat.

Activity 1: Assess/identify viable research projects/activities

Activity 2: Publish news on successful research projects/activities

b) To establish checklists of bromeliad species occurring in the wild for all countries and determine the degree of threat facing each species

Activity 1: Gather information on threat status

c) To prepare a record of important areas that already are protected legally, e.g. national parks and protected areas, and lists of bromeliad species, that are, in theory, safe within them

Activity 1: Organize travel/tours to natural habitats

Activity 2: Encourage members traveling to bromeliad habitats to document sites, and species information, conservation status, to take photographs and provide the data to the conservation chairman

Activity 3: Contact protected area managers

d) To establish lists of areas of great bromeliad species diversity or high endemism that should be protected by conservation organizations, governments or by other means.

Activity 1: Assess areas of high valuable bromeliad species

e) To prepare a record of bromeliad species which are already in cultivation in botanical gardens, or in private and commercial collections.

Activity 1: Gather all reliable data on bromeliad species in cultivations

f) To prepare a record of those species already being propagated and grown successfully in cultivation.

Activity 1: Gather information on successfully cultivated bromeliad species surveys and the monitoring of the members' awareness

g) To prepare lists of species that should be propagated

- (1) Those which are of value in any sense.
- (2) Those which could take the pressure off wild populations
- (3) Those which could be used to increase the global populations wherever possible and necessary.

Activity 1: Gather and archive lists of species that should be propagated

GOAL 2: PUBLIC AWARENESS OF THE NEED FOR CONSERVATION

To develop an awareness of plant species and habitat conservation in order to educate for conservation and inspire future generations by creating a scientifically literate public, maintaining professional skills, and enriching personal lives through increased appreciation of nature.

a) To prepare the pre-conditions for information transfer

Activity 1: Develop and conduct annual meeting mini-courses or workshops on bromeliad conservation

Activity 2: Develop and publish a newsletter for the affiliated

societies, including central aspects of the current

conservation status of bromeliads

Activity 3: Encourage existing fellowship programs to include bromeliad conservation as part of their focus

Activity 4: Create and maintain the Conservation Corner on the BSI website

Activity 5: Encourage local societies to work together with local botanical gardens/conservation projects

Activity 6: Create a slide/cd /DVD program on bromeliad threats and conservation for the media library

Activity 7: Partner with at least one conservation group with high profile programs in Latin America

Activity 8: Train BSI legal judges on conservation of bromeliads in a special workshop

b) To inform about conservation of Bromeliads.

BSI believes that widely disseminating information to a variety of audiences, creates a better informed public, resulting in better public decision making and better protection of bromeliads/biodiversity.

Activity 1: Archive, update and publish BSI internal conservation achievements on relevant media platforms under the heading of the mentioned Conservation Corner

Activity 2: Inform about current biodiversity status, threats and conservation on relevant public platforms

Activity 3: Disseminate habitat and other bromeliad conservation relevant data to targeted international, national and NGO bodies that affect conservation policies and management (see data collection & research)

Activity 4: Publish a list of directories of reputable commercial growers

c) To promote *in situ* measures of bromeliad conservation among researchers and aficionados.

Activity 1: Publish news on protected areas or other biodiversity and especially on bromeliad conservation measures

Activity 2: Provide reliable tips for sustainable use of biodiversity and other resources

Activity 3: Fund viable practicers/projects/activities enhancing the protection of bromeliads in collections and in their habitats brought to the attention of the committee through its wide membership, and by others

d) To promote viable *ex situ* techniques in order to maintain wild populations especially among commercial growers and in the countries of origin of the wild species, in order to protect those plants remaining in the wild.

Activity 1: Advocate *ex situ* cultivation, seed banking, growing from seed, artificial propagation of bromeliad species, species collection versus hybrids

Activity 2: Promote propagation of successfully grown species of existing collections

Activity 3: Prove origin of plant material presented at plant shows, especially of specimens that are candidates for awards

Activity 4: Offer a rescue service for lost collections of rare bromeliad species

4 Discussion

4.1 QUANTITATIVE EVALUATION OF ACTIONS RESPONDING THE SWOT

The tables show the quantity of activities of the presented strategic action plan resulting from every SWOT-analyzed characteristic of BSI.

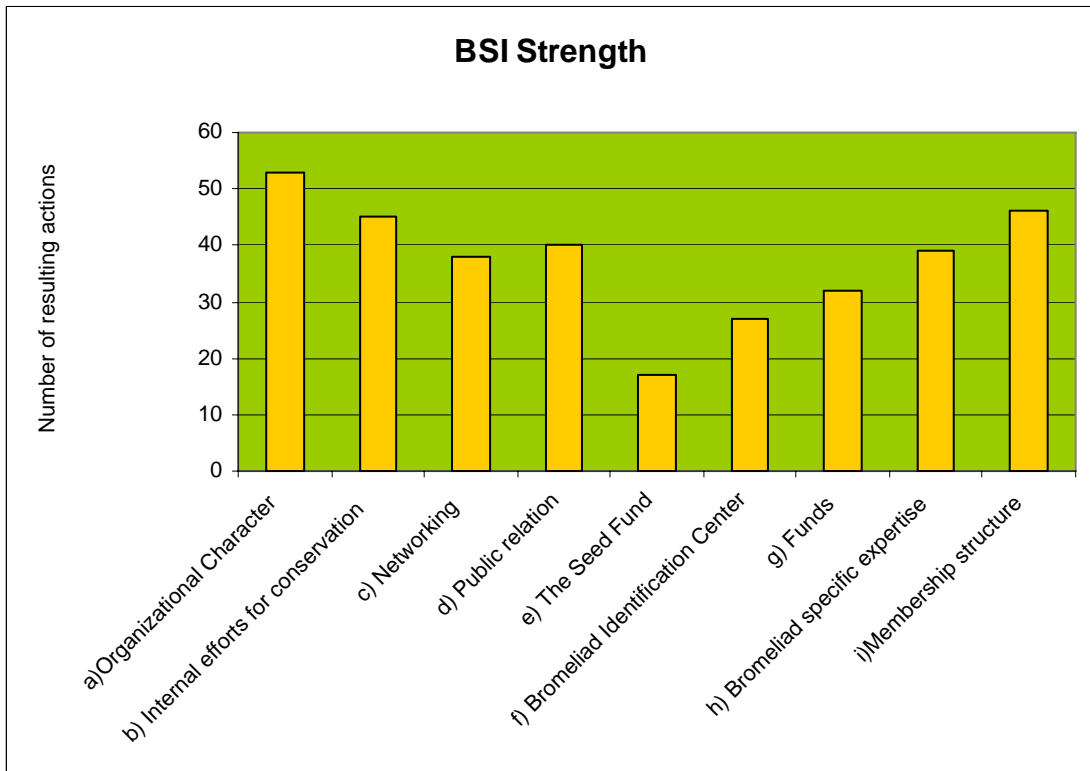


Figure 1: The amounts of actions building on strength

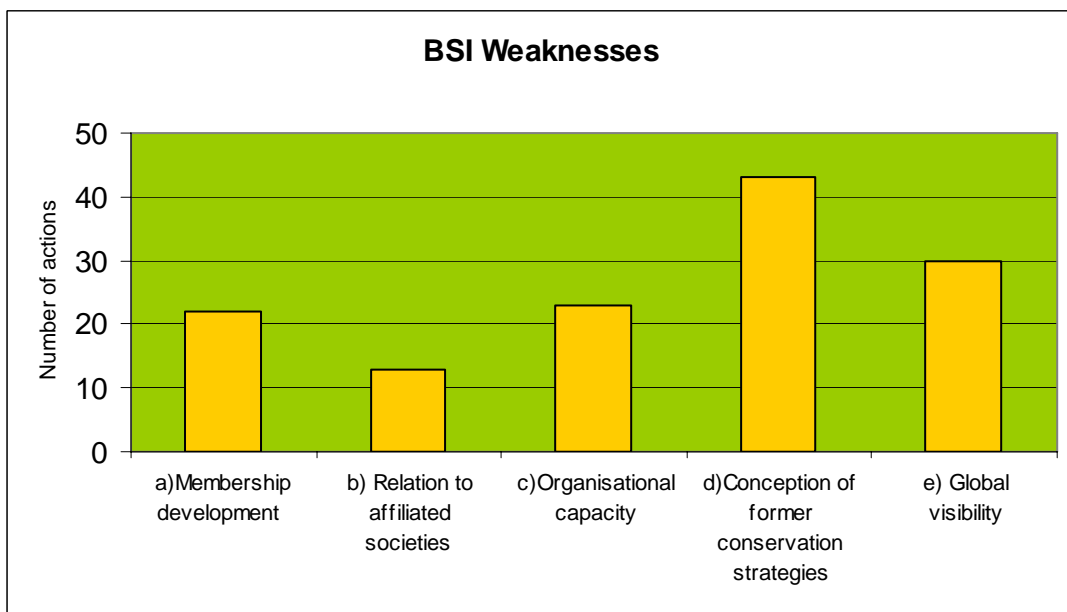


Figure 2: The amounts of actions helping to eliminate weaknesses

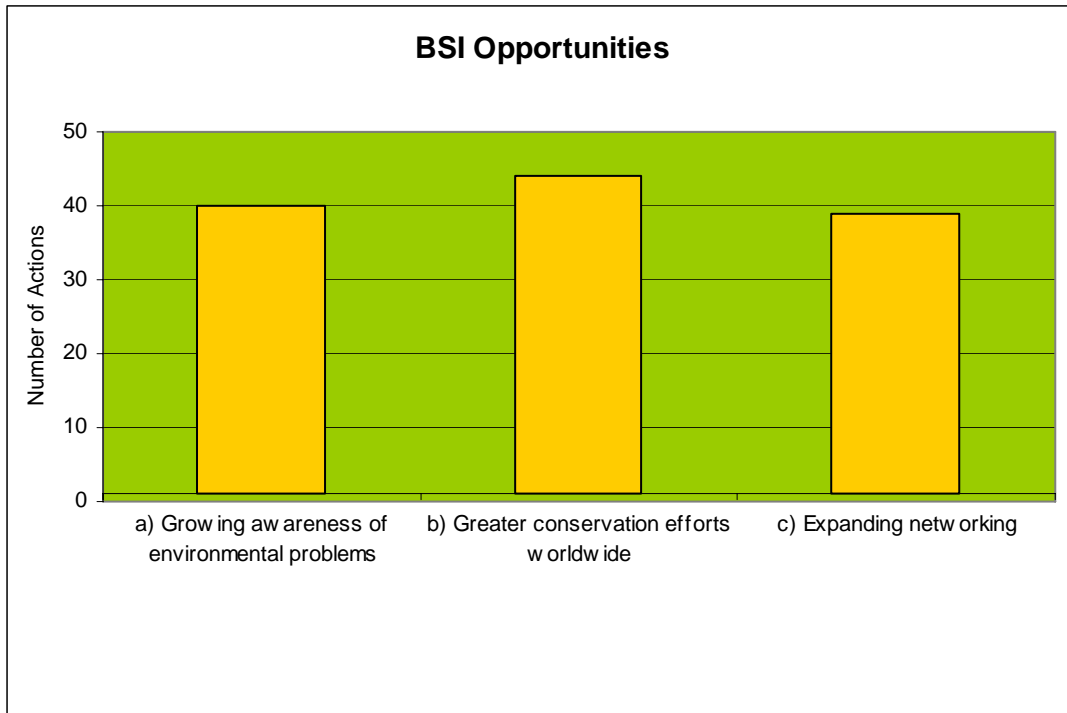


Figure 3: The amounts of actions exploiting opportunities

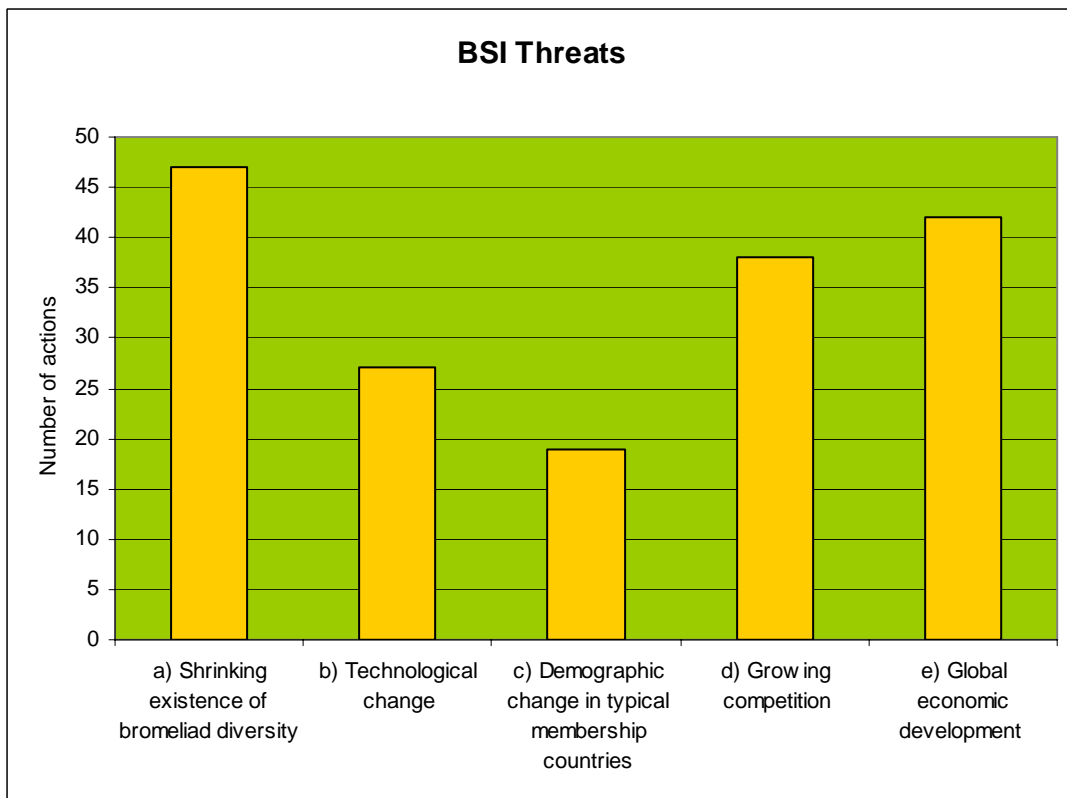


Figure 4: Amount of actions mitigating the effects of threats

Referring to the SWOT- analysis, it is advised to have a balanced amount of resulting actions to every characteristic. The higher number of strengths result in a larger amount

of corresponding advised activities performed by BSI which are more or less equally distributed. It can therefore be concluded that the action plan inherits mostly actions that build on BSI strength, since it has a lot more strengths in comparison to the amount of weaknesses, threats, or opportunities.

4.2 FINAL DISCUSSION

BSI is already indirectly promoting and supporting certain activities towards conservation of bromeliads and their habitats by promoting public and scientific interest in the plant species Bromeliaceae. In their bylaws in 1987, BSI has described the function of the standing committees of conservation and even endorsed but not implemented several Conservation Goals and a Code of Conduct. BSI has failed to more effectively and actively engage in conservation in the past. Until now BSI has not established a position to react to a growing need for bromeliad conservation needs.

In order to find the true cause of the failure of earlier endeavors the situational analysis within the application of the management tool SWOT was effective. It has been attempted to involve several members of the organization for the contribution of their opinion into the strategy planning process. A questionnaire holding several SWOT-related questions has been sended out but not been replied by an aqivalent number of recipients to be used for statistical representation. Usually the survey method is regarded as a participatory process in order to find solutions with a wide ranged rigor for organizational management changes but here the outcome may show an organizational weakness. Therefore an organizational analysis of the implementing organization has been an integral part of the SWOT analysis beyond its conservation capacity. The SWOT pointed out institutional and external factors influencing the process of meeting the needs of the current call for change.

With the help of the SWOT analysis management tool, it has been pointed out in what way combinations of factors such as BSI's strength, weaknesses, opportunities, and threats may influence the organizational capacities of conservation actions for bromeliads.

The establishment of a strategic action plan for framing conservation activities of BSI has become important to more actively engage in bromeliad conservation matters. A strategic action plan including intra- institutional and external goals, objectives, and activities has been developed, addressing BSI's weaknesses, strengths, opportunities, and threats. Some formulations have been extracted from the previous concepts and

reused within the new plan. The aim of the presented BSI Strategic Action Plan has been to establish a framework for improving action and performance of the society and its clients for reaching BSI's mission of promoting and supporting the preservation of bromeliads throughout the world. Diverse and transnational membership can be seen as one definite strength of the BSI.

The major opportunity of BSI lies within the provision of their expertise and of conservation- relevant information they have on bromeliads to a wide spread audience.

Within the strategic action plan special attention is given to *ex situ* cultivations since typical clients of BSI members often have some kind of horticultural collection. *Ex situ* techniques /programs are not a replacement for the conservation of wild plants and wild areas, but such measures can be complementary to *in situ* conservation. Together *in situ* and *ex situ* methods are part of a more inclusive effort called Integrated Conservation Strategies in which off-site efforts are a valuable support tool for habitat-based conservation efforts.

Ex situ cultivations may serve as a reliable source for reintroduction of bromeliads. It may be difficult to maintain a representative and adequate genetic profile in cultivation. Since they are subject selective, they might adjust to the horticultural environment. An additional risk is the introduction of viral infections into rare genetic material.

But facing the fact of ongoing destruction of natural areas, private collections (as with animals and zoos) will be a vital part of the global conservation strategy.

Within *ex situ* collection, hybrids are quite frequent. Hybridization is a major trend in the cultivation of bromeliads; since hybrids receive a higher price and interest. Some collectors are not aware of the difference between regular species and hybrids, making it difficult to cease this cultivation and propagation technique. The hybridization practice always is in need for more fresh material so that exploitation of wild bromeliad populations will go on. Another major concern, which lies within hybridizing, is the proper registration of new genera, which laymen may fail to do. To sum the effects up, the loss of original genetic information tends to lead to further genetic erosion.

From the conservationist's point of view, species collections should be favored, as mentioned throughout the *JOURNAL*, because without species there would be no hybrids. Public collections have the greatest potential for enhancing expertise on genera, horticulture and the capacities to provide proper growing conditions for mismanaged or threatened bromeliad species.

A current problem for BSI is the development of the membership structure. If it fails to implement necessary actions to improve the public performance and capacity of the organization, the society will face a further decrease of membership. With the help of a renewed and improved public presence of BSI, it will attract more young growers to become members and/or bromeliad interested. Longterm members can serve as a reliable source of experts for experience and knowledge transfer on bromeliads for layman. If reaction on this problem, important collections and knowledge may get lost. With the implementation of the action plan, BSI can stand any competitions to other famous plant organizations as the American Orchid Society or the Cactus & Succulent Societies which already have public relation devices and information on conservation available on their websites by this way indicating a certain conservation strategy.

Several problems can not be influenced directly by the presented conservation strategy, such as the world wide economy and international law.

Identification of properly or improperly managed plants is hardly possible for the normal customer. Additionally controlling activities like illegal harvesting and /or trade would require an expensive permitting process and chain-of-custody documentation. As this is not possible for BSI to implement, the conservation strategy attempts to meet the need for engagement by proposing reliable data to BSI clients, conservationists, and decision makers. The establishment of the Conservation fund may be seen as the most powerful tool to promote and support endeavors towards the conservation of bromeliads. Several action steps require greater resources and funding in order to be carried out. With expertise, publication, and funding BSI might be able to reward outstanding projects and people contributing towards the preservation of bromeliads.

The Code of Conduct for collectors and growers is especially regarded as an important tool on the internal level for creating awareness, but also personal dedication to proper behavior and action regarding trade, cultivation and research of bromeliads.

As the Code of Conduct neither includes regulatory mechanisms to monitor members actions nor drafts possible consequences of inappropriate behavior, the effectiveness is limited. It is based on a level of trust.

One problem of the strategic action plan lies within the management level. The planning party is not convergent with the implementing party, resulting in a different perspective in the implementation of actions. Strategic planning is always subjective, since personal objectivity usually is not possible. To add by way of explanation the implementation of

the strategic action plan will also be based on a subjective interpretation by BSI (Karppi et al 2001). It may not be completely synchronized with the planning process.

The progress of the implementation of the conservation strategy can be monitored, such as evaluating former conservation actions and the formulation of a report, and are included in the annual conferences. Alternative feedback for the measurement of successful implementation could be the inclusion of conservational aspects into general membership surveys indicating if the general knowledge on conservation increases.

5 Conclusion and Outlook

The aim of the strategic action plan is the initiation and sustained engagement of conservation by the target group BSI. The strategic plan provides the organization with several tools, enabling it to promote the conservation of bromeliads. The impact of the plan on the organization may be measurable and therefore monitored. Furthermore the action plan includes advice for BSI to promote certain attitudes and behavior of bromeliad growers and collectors. These very actions refer to an impersonal target group where efficiency and impact are hard to measure. The current trend in conservation is the integrated ecosystem approach, through which the functions, goods, and services of ecosystems are assessed and preserved. The establishment of priority areas enables the preservation of biodiversity hotspots or other viable ecosystems. However, single species conservation is seldom part of the current conservation approaches, so that BSI may be an important contributor to general knowledge on bromeliad conservation. Bromeliads often serve as key species in ecosystems, which could be seen as a potential for diverse conservation activities. In the very special case of bromeliads, it is both a challenge and a possibility to create a sustained flagship species with a suitable set of conservation principles.

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Appendix

1. Original Questionnaire	VI
2. The Responded Questionnaires.....	IX
BERT, THERESA- TERRIE, 2006	IX
LYNN HUDSON, 2006.....	XII
GREGORY K. BROWN- GREG, 2006	XV
3. Code of Conduct for BSI Members	XVIII
4. Responsibilities and Time Frame for the Realization Process of the Strategic Action Plan	XXII

1. Original Questionnaire

Dear chairmen and directors,

As indicated before we are establishing a conservation strategy for the BSI. To do so we will make an analysis of the organization pointing out:

- Fundamental characteristics of BSI
- In what way they are achieving their purpose as indicated in the bylaws Art. 2 and how it could be improved
- Evaluation of current conservation efforts
- Evaluation of former conservation attempts and possible improvements

Therefore we want to use the SWOT Analysis a tool which can be used in identifying an organization's strengths (S) and weaknesses (W), and examine the opportunities (O) and threats (T) it is facing. The outcome from a SWOT Analysis enables organizations to focus on strengths, minimize weaknesses, address threats, and take the greatest possible advantage of opportunities available towards the promotion of the conservation of bromeliads and their natural habitats.

In the following there are some questions (**fat and black**) and tips of a SWOT-Analysis we found very helpful taken out from an internet source.

We will be thankful if you could answer or comment on them all in the context of BSI and bromeliad conservation - please use the spacing (or enlarge it) under the very question of this word document. We already included some answers (grey) as for inspiration or provocation. Please send in your papers until the **11/17/2006** to conservation@bsi.org.

Your ideas will serve as a kind of brainstorming and so help us to create a well implementable conservation strategy.

Strengths:

Questions to ask and answer:

What do we do exceptionally well?

- Enthusiasm about nature, flora, cultivation
- Taxonomic, ecological, horticultural expertise
- Travel reports providing actual data on bromeliads in their habitats

-
-

What advantages do we have?

- Non- profit organization so that all efforts are for no commercial purposes

-
-

What valuable assets and resources do we have?

- Experience and reputation of over 50 years of existence

-
-

What do members/customers identify as our strengths?

- Organization of annual meetings
- Publication of *The Journal*

-

Tips:

Be realistic...and honest!

Think in terms of what you have that your competitors don't have.

Don't just take the internal staff and volunteer perspective...consider how your members and customers view your organization

Weaknesses:

Questions to ask and answer:

What could we do better?

- Activate the members for conservation initiatives
- Implement the code of conduct and conservation goals

-
-

What are we criticized for or receive complaints about?

- Missing conservation issues

-

Where are we vulnerable?

?-

Tips:

Don't tiptoe around weaknesses, but be constructive and positive in putting them on the table.

Get research so you know what outsiders think...about you and your competition!

Opportunities:

Questions to ask and answer:

What opportunities do we know about, but have not been able to address?

- Provide conservation relevant data to international conservation activists/ organizations

-

-

Are there emerging trends on which we can capitalize?

- Ecological change?

-

Tips:

Look at changes in the sector represented by the organization, technological changes, government policy, socioeconomic and demographic changes.

Be open-minded...key opportunities may come from unlikely and seemingly unrelated sources.

Consider how you can exploit your strengths or address your weaknesses to generate additional opportunities,

Threats:

Questions to ask and answer:

Are any of our weaknesses likely to make us critically vulnerable?

- The effectiveness of a code of conduct is hard to monitor as no regulatory mechanism can be implemented due to missing staff and resources

-

-

What external roadblocks exist that block our progress?

-?

Are our competitors or quasi-competitors doing anything different?

- Greater involvement/representation in conservation matters (such as the AOS... does)

-

Is there significant change coming in our members' sector?

- With the growing relevance of internet representation and the modern trend of digitalization of texts reducing membership which ordered *The Journal* because lots of members might only inform themselves via internet about the news and upcoming events

Is technology dramatically changing the sector and services to it?

?-

Are economic conditions affecting our financial viability?

?-

Tips:

Have an open and expansive perspective. The buggy whip manufacturing association may not have seen early automobiles as a big threat to the association...but they were!

An environmental scan is critical.

Source

(The Canadian Association (AXI), 07/11/2006, Facilitation Role, http://ww.axi.ca/tca/Sep2003/facilitationrole_1.shtml)

Thank you for your co-operation

2. The Responded Questionnaires

Answers are indicated in *Italics* and grey

BERT, THERESA- TERRIE, 2006

Strengths:

Questions to ask and answer:

What do we do exceptionally well?

- Enthusiasm about nature, flora, cultivation
- Taxonomic, ecological, horticultural expertise
- Travel reports providing actual data on bromeliads in their habitats
- *Publish a high-quality journal that focuses on bromeliads and includes both scientific and non-technical information*

What advantages do we have?

- Non- profit organization so that all efforts are for no commercial purposes

-The BSI is the only society in the world that focuses exclusively on bromeliads, which are ecologically important and generally endangered.

-

What valuable assets and resources do we have?

- Experience and reputation of over 50 years of existence
- *Close contact with world leaders in bromeliad taxonomy, evolution, and ecology.*

What do members/customers identify as our strengths?

- Organization of annual meetings
- Publication of The Journal

Tips:

Be realistic...and honest!

Think in terms of what you have that your competitors don't have.

Don't just take the internal staff and volunteer perspective...consider how your members and customers view your organization

Weaknesses:

Questions to ask and answer:

What could we do better?

- Activate the members for conservation initiatives
- Implement the code of conduct and conservation goals
- *Make greater efforts to publicize the beauty and value of bromeliads.*
- *Improve our conservation efforts.*

What are we criticized for or receive complaints about?

- Missing conservation issues

-

Where are we vulnerable?

-?

Tips:

Don't tiptoe around weaknesses, but be constructive and positive in putting them on the table.

Get research so you know what outsiders think...about you and your competition!

Opportunities:

Questions to ask and answer:

What opportunities do we know about, but have not been able to address?

- Provide conservation relevant data to international conservation activists/organizations
- *Increase membership*
-

Are there emerging trends on which we can capitalize?

- Ecological change? yes
- *We could partner with other conservation groups that have high-profile programs in Latin America; e.g., Conservation International, World Wildlife Fund, Audubon Society.*

Tips:

Look at changes in the sector represented by the organization, technological changes, government policy, socioeconomic and demographic changes.

Be open-minded...key opportunities may come from unlikely and seemingly unrelated sources.

Consider how you can exploit your strengths or address your weaknesses to generate additional opportunities,

Threats:

Questions to ask and answer:

Are any of our weaknesses likely to make us critically vulnerable?

- The effectiveness of a code of conduct is hard to monitor as no regulatory mechanism can be implemented due to missing staff and resources
-

What external roadblocks exist that block our progress?

?-

Are our competitors or quasi-competitors doing anything different?

- Greater involvement/representation in conservation matters (such as the AOS... does)
-

Is there significant change coming in our members' sector?

With the growing relevance of internet representation and the modern trend of digitalization of texts reducing membership which ordered The Journal because lots of members might only inform themselves via internet about the news and upcoming events

ditto the above

Is technology dramatically changing the sector and services to it?

?-yes

Are economic conditions affecting our financial viability?

?-Yes, but they shouldn't. We have lots of money.

Tips:

Have an open and expansive perspective. The buggy whip manufacturing association may not have seen early automobiles as a big threat to the association...but they were!

An environmental scan is critical.

LYNN HUDSON, 2006

Strengths:

Questions to ask and answer:

What do we do exceptionally well? *Rating out of 10*

- Enthusiasm about nature, flora, cultivation *9.5*
- Taxonomic, ecological, horticultural expertise *Rating 9.5*
- Travel reports providing actual data on bromeliads in their habitats *9.5*
- *Camaraderie shared by members from diverse backgrounds & occupations*
- *Meeting and interacting on equal footing.*

What advantages do we have?

- Non- profit organization so that all efforts are for no commercial purposes
- *Common product is bromeliads, more we learn the more we find we do not know*
- *International membership base & current President with International outlook*

What valuable assets and resources do we have?

- Experience and reputation of over 50 years of existence
- *Members knowledge and enthusiasm for product*
- *Commercial growers, Hybridizers, Hobby Growers who are becoming the wide source of varied genera growing*
- *Identification Centre*
- *Some commercial growers are also involved in research*
- *Camaraderie shared by members from diverse backgrounds & occupations*
- *International membership base & current President with International outlook*

What do members/customers identify as our strengths?

- Organization of annual meetings
- Publication of The Journal
- *Horticultural knowledge*
- *Information available through members, publications and electronic media*

Tips:

Be realistic...and honest!

Think in terms of what you have that your competitors don't have.

Don't just take the internal staff and volunteer perspective...consider how your members and customers view your organization

Weaknesses:

Questions to ask and answer:

What could we do better?

- Activate the members for conservation initiatives
- *provide explicit details of habitat degradation, photographs on Journal cover. At least on the back cover every second journal. See vol 56(1) front cover beautiful bromeliads (no I'm not being biased!) – ALL hybrids, turn the journal over – this has a big impact.*

Conserve species outside habitat. Each society encourage/provide/maintain species for local botanic gardens?

Encourage more propagation by seed growing – especially where pollination is controlled to prevent cross pollination

- Implement the code of conduct and conservation goals

Propagators involved in tissue culture & genetic modification obliged to maintain a collection of species plants that are parents of the hybrids?

What are we criticized for or receive complaints about?

- Missing conservation issues

International view – BSI is “over there, we are over here and do not count” –

Where are we vulnerable?

We need more younger growers and we need them now to educate them to finally replace us. The younger generation has been raised with conservation as a necessary part of their lives.

Tips:

Don't tiptoe around weaknesses, but be constructive and positive in putting them on the table.

Get research so you know what outsiders think...about you and your competition!

Opportunities:

Questions to ask and answer:

What opportunities do we know about, but have not been able to address?

- Provide conservation relevant data to international conservation activists/ organizations
- *Increase membership*

Are there emerging trends on which we can capitalize?

- Ecological change?
- *Media library – include CD/DVD on degradation of habitat*

Tips:

Look at changes in the sector represented by the organization, technological changes, government policy, socioeconomic and demographic changes.

Be open-minded...key opportunities may come from unlikely and seemingly unrelated sources.

Consider how you can exploit your strengths or address your weaknesses to generate additional opportunities,

Threats:

Questions to ask and answer:

Are any of our weaknesses likely to make us critically vulnerable?

- The effectiveness of a code of conduct is hard to monitor as no regulatory mechanism can be implemented due to missing staff and resources
- *Need trained young bromeliad enthusiasts to follow us -*

What external roadblocks exist that block our progress?

- *Public knowledge/ability to change situation*

Are our competitors or quasi-competitors doing anything different?

- Greater involvement/representation in conservation matters (such as the AOS... does)

Is there significant change coming in our members' sector?

- *Yes and media should address this more effectively – eg fcbs.org and the weevil*

- With the growing relevance of internet representation and the modern trend of digitalization of texts reducing membership which ordered The Journal because lots of members might only inform themselves via internet about the news and upcoming events

Is technology dramatically changing the sector and services to it?

- *Yes, we should capitalize on this*

Are economic conditions affecting our financial viability?

- *Always has, always will*

Tips:

Have an open and expansive perspective. The buggy whip manufacturing association may not have seen early automobiles as a big threat to the association...but they were!

An environmental scan is critical.

GREGORY K. BROWN- GREG, 2006

Strengths:

Questions to ask and answer:

What do we do exceptionally well?

- 1. Provide a formal system of communication for people interested in bromeliads.*
- 2. BSI puts out a high quality journal 6 times a year, and also supports a major conference every other. Major accomplishments considering the meager budget and all volunteer workforce!*

What advantages do we have?

Focus on one taxon (family)

What valuable assets and resources do we have?

- 1. Name. The BSI basically is the authoritative body on all things related to Bromeliaceae.*
- 2. Membership is our core resource.*
- 3. Our Journal.*

What do members/customers identify as our strengths?

- 1. Our Journal.*
- 2. Communication – keeping up with what is generally going on with bromeliads.*

Tips:

Be realistic...and honest!

Think in terms of what you have that your competitors don't have.

Don't just take the internal staff and volunteer perspective...consider how your members and customers view your organization

Weaknesses:

Questions to ask and answer:

What could we do better?

It is hard to imagine what it is that BSI could do better considering the fact that BSI is a not-for-profit organization, with a very modest budget, no source for a large discretionary income, and one that is staffed by volunteers.

What are we criticized for or receive complaints about?

I know that the membership is not happy if the Journal gets too far behind in publication. Other than this, I am not aware of any systemic complaint.

Where are we vulnerable?

1. Loss of membership. Ability to recruit new members.

2. Decisions by very capable members not to serve in their volunteer capacity.

Tips:

Don't tiptoe around weaknesses, but be constructive and positive in putting them on the table.

Get research so you know what outsiders think...about you and your competition!

Opportunities:

Questions to ask and answer:

What opportunities do we know about, but have not been able to address?

- ?

Are there emerging trends on which we can capitalize?

- ?

Tips:

Look at changes in the sector represented by the organization, technological changes, government policy, socioeconomic and demographic changes.

Be open-minded...key opportunities may come from unlikely and seemingly unrelated sources.

Consider how you can exploit your strengths or address your weaknesses to generate additional opportunities,

Threats:

Questions to ask and answer:

Are any of our weaknesses likely to make us critically vulnerable?

- 1. Loss of key volunteer commitments*
- 2. Major decreases in membership*

What external roadblocks exist that block our progress?

- No external barriers, as far as I can tell.

Are our competitors or quasi-competitors doing anything different?

- Unless a set of competitors is identified, I know of none, I cannot respond.

Is there significant change coming in our members' sector?

- Could be, but I have a sense that most of the current membership likes to have the traditional printed Journal "in-hand". As this "traditional" membership population declines and is replaced with a younger, more computer-comfortable generation, we may have a problem.

Is technology dramatically changing the sector and services to it?

- Probably.

Are economic conditions affecting our financial viability?

- Absolutely. Even though membership in BSI is extremely inexpensive it still represents discretionary spending. If economy is not doing well, and I personally feel my budget tighten, memberships to organizations like BSI are subject to cutting. I suspect many BSI members are in the same situation.

Tips:

Have an open and expansive perspective. The buggy whip manufacturing association may not have seen early automobiles as a big threat to the association...but they were!

An environmental scan is critical.

3. Code of Conduct for BSI Members

Modified after the Code of Conduct for Bromeliad Growers and Collectors of 1987 by BSI.

Code Of Conduct for BSI Members

I. Collection of wild plants

A. General conduct: Obey international, national, and local regulations including the following:

1. The Convention on Biological Diversity (CBD) and especially the recognition on the CBD's reference to the access and fair benefit sharing with the countries of origin of biological organisms.
2. The Convention on International Trade in Endangered Species of Fauna and Flora (CITES).
3. Other national and regional laws pertaining to particular parcels of land, cultivation, import, export, and to protection of species.
4. Local customs of land and plant ownership.

B. Professional courtesies:

1. Obtain all necessary permits (collecting, export, and import).
2. Contact local organizations, institutions, and/or professionals. Your intentions are likely to be of interest to them, and they can be helpful to you.

C. Responsibilities in the field:

1. Never jeopardize natural populations. Collect only a small percentage of the plants present. If the site shows signs of previous heavy collections, or other signs of damage, seek another locality.
2. When possible, collect seeds or offsets rather than entire plants. When collecting whole plants, choose small ones and leave the large ones for seed production.
3. Make careful field notes. Include precise locality, elevation, host plants or rock (if epiphytic), plant associations, date, and your field number. If possible, assess population density and range. Take photographs of the habitat.

4. Make herbarium specimens whenever possible, especially when collecting in remote locations or when you find something unusual (it is not necessary to know the identity of your specimens). Collect at least two specimens: one for the national herbarium of the host country (often this is a condition for obtaining a collecting permit), and one for the M.B. Foster Bromeliad Identification Center at the Mary Selby Botanical Gardens.
5. Do not collect more plants than you can care for, either during the field trip or when you return home. Do not collect plants that you will not be able to grow under the conditions you can provide for them (e.g do not collect in a cloud forest if you cannot cool your growing facility. If you encounter a population or species which appears to be endangered, or if you come across information regarding its possible preservation or destruction, please report it to the Conservation Committee chairperson.

II. Maintenance of collections (private, public, and commercial)

- A. Propagate rare and documented plants and contribute to their survival by distributing them to other enthusiasts. Remember the proverb: To keep a plant, give it away.
- B. Keep rare and scientifically valuable plants clearly and correctly labeled. Also keep records of their performance under your conditions of cultivation.
- C. Share your knowledge with others , but DO NOT casually disclose specific locations of rare and desirable plants. Not every enthusiast is a scrupulous collector.
- D. Ensure that your valuable plants will survive you. A botanical garden is often an excellent beneficiary, as is your local bromeliad society.
- E. Buy plants from reputable nurserymen. Do not patronize a supplier who trades in illegally obtained plants in large quantities.

III. Recommendations for bromeliad societies and clubs

- A. Endorse the precepts of this Code of Conduct as a guide for responsible and conscientious behavior.
- B. Discourage the advertising of wild-collected plants of rare species for sale in your publications.
- C. Publicize national and international regulations on the export, import, and sale of wild plants.
- D. Sponsor or support measures to support measures to protect the habitats of rare or threatened species.
- E. Assist your members in making arrangements for the continued survival of their plants when they lose interest or can no longer care for them.

IV. Recommendation for show committees and judges

- A. Include in the show schedule some classes for species raised from seed by the exhibitor.
- B. Include in the schedule some recognition for rare or undescribed species. Rare plants must not be collected in such a way as to jeopardize the population. This practice is necessarily a matter of honor with the collector.
- C. Include good cultivation in judging criteria.
- D. Restrict competition to plants that have been grown in cultivation for at least one year.

4. Responsibilities and Time Frame for the Realization Process of the Strategic Action Plan

Legend	
	one time task
	constant task

	Responsables	Working time in Hours	Month	1	2	3	4	5	6	7	8	9	10	11	12
<u>Phase I: Optional but necessary for the sustainable impact of the conservation strategy:</u>															
Goal 1: To improve organizational reputation and capacity The BSI is recognized as the world’s leading authority in bromeliad issues and holds the organizational capacity to manage its membership, publications and conferences delivering high quality, integrated and effective products.															
a) To develop a strong identity, messaging, and promotional activities that will strengthen the BSI’s visibility and reputation															
Activity 1: Clarify the BSI’s identity and develop a compelling message	BSI Board/President	41													
Activity 2: Create a new look for the BSI’s identity	BSI Board/President	41													
Activity 3: Marketing plan for the BSI products and services	Relevant Officer or Committee Chairman of public relation and services	41													

Activity 4: Transmit the message across the BSI's entire product line and membership outreach efforts	Relevant Officer or Committee Chairman of public relation and services	longterm																	
b) To develop and maintain an attractive suite of membership benefits																			
Activity 1: Create and maintain plant exchange for members	BSI Board/Relevant Officer or Committee Chairman of public relation and services	25+longterm																	
Activity 2: Publish the Journal in time	Editor of JOURNAL	longterm																	
Activity 3: Diversify content of magazine	Editor of JOURNAL	longterm																	
Activity 4: Create and offer online order seed fund service	Officer/Director of Seed Fund +Webmaster	25+longterm																	
c) To maintain, expand and diversify membership BSI would like to expand the membership of bromeliad professionals throughout the world because a larger membership is more effective																			
Activity 1: Develop a membership development plan	Officer/Director of Membership	33																	
Activity 2: Intensify contact with affiliates	Committee Chairman of Affiliated Societies	longterm																	
Activity 3: Automate the reminder mail for people who forget to renew their membership	Officer/Director of Membership+ Webmaster	2+longterm																	
Activity 4: Promote the education of young and inexperienced bromeliad growers	longterm/always	longterm																	
Activity 5: Define and co-operate with commercial growers (Get external advertisement in form of tags with BSI direction on for member recruitment)		33+longterm																	

d) To improve the layout of the website																	
Activity 1: Include more illustrative pictures	Webmaster	33+longterm															
Activity 2: Include more interactive tools	Webmaster	33+longterm															
Activity 3: Use more attractive colors	Webmaster	2+longterm															
e) To increase communications and collaborations among researchers																	
Activity 1: Develop and maintain an open Bromeliad Discussion Forum on bromeliad issues	Webmaster	24+longterm															
Activity 2: Appoint/publish direction of experts to be contacted concerning special bromeliad topics	BSI Board/President+ Officer for reliable public relation tool	16+longterm															
<u>Phase II: Enabeling BSI to become a conservation actor</u>																	
GOAL 1: To provide the pre-conditions to the implementation of the strategic action plan																	
a) To prepare internal management plans																	
Activity 1: Prepare executive operational plan including revenue, expense targets, and responsibilities to guide decision making, and implementation of the plan	BSI Board/President	41															
Activity 2: Prepare section plans (each BSI section will develop its own work plan to implement activities consistant with this plan and appropriate to the section's needs)	Relevant Officer and Committee Chairmen	41															
Activity 3: Annually evaluate and monitor the progress of the strategy and include report into the official board meeting	Chairman of Conservation	25+longterm															

Activity 4: Adapt the action plan to current conditions/achievements	Chairman of Conservation	25+longterm															
Activity 5: Strive for financial independence of all BSI programs	BSI in general	longterm															
b) To establish and maintain a Conservation Fund for conservation activities																	
Activity 1: Create a Conservation Fund for conservation activities of bromeliads	BSI Board	1															
Activity 2: Appoint fund raiser /committee	BSI Board	3															
Activity 3: Prepare and implement a fundraising plan	Fund Raiser/Committee	25															
Activity 4: Put donation button of the Conservation Fund on the website	Webmaster	2															
Activity 5: Include the Conservation Fund into the membership application	Officer/Director of Membership	1															
Activity 6: Appoint the conservation committee of BSI for acceptance of applications for grants and funds on conservation projects	BSI Board/President	1															
c) To implement the "Code of Conduct for Bromeliad for BSI Members" the main aim of which will be the further protection of species in their wild habitats.																	
Activity 1: Approve the new version of the Code of Conduct for BSI Members	BSI Board	1															
Activity 2: Include the new version of the Code of Conduct into general application/renewal form for BSI membership	Officer of Membership	1															

Activity 3: Assess and recruit commercial growers and advertisers mentioned in the BSI publications to ratify the Code of Conduct (eventually reject non-signers)	BSI Board	longterm																	
Phase III: BSI as an conservation actor																			
GOAL 1: To Promote Research and Data Collection																			
a) To promote and support more conservation targeted research on Bromeliaceae. Such research should include the assessment of threats, conservation, protection status and ecological role in the habitat.																			
Activity 1: Assess/identify viable research projects/activities	Chairman of Conservation	41+longterm																	
Activity2: Publish news on successful research projects/activities	Chairman of Conservation/Chairman for relevant public relation	longterm																	
b) To establish checklists of bromeliad species occurring in the wild for all countries and determine the degree of threat facing each species																			
Activity 1: Gather information on threat status	Chairman of Conservation	160																	
c) To prepare a record of important areas that already are protected legally, e.g. national parks and protected areas, and lists of bromeliad species, that are, in theory, safe within them																			
Activity 1: Organize travel tours to natural bromeliad habitats	BSI in general	48+longterm																	

Activity 2: Encourage members traveling to bromeliad habitats to document sites, and species information, conservation status, to take photographs and to provide the data to the conservation chairman	BSI in general	longterm															
Activity 3: Contact protected area managers	Committee chairman for conservation	80															
d) To establish lists of areas of great bromeliad species diversity or high endemicy that should be protected by conservation organisations, governmental or by other means.																	
Activity 1: Assess areas of high valuable bromeliad species	Committee Chairman for Conservation	160															
e) To prepare a record of bromeliad species that are already in cultivation in botanical gardens, or in private and commercial collection.																	
Activity 1: Gather all reliable data on bromeliad species in cultivations and maintain updated list	Committee Chairman for Conservation+ Committee Chaiman for Cultivar Registration	160															
f) To prepare a record of those species already being propagated and grown successfully in cultivation.																	
Activity 1: Gather information on successfully grown cultivated bromeliad species and maintain updated list	Committee Chairman for Conservation +Committee Chaiman for Cultivar Registration	160															

<p>g) To prepare lists of species that should be propagated (1)Those which are of value in any sense. (2) Those which could take the pressure off of wild populations (3) Those which could be used to increase the world populations wherever possible and necessary</p>														
<p>Activity 1: Gather and archive data of species that should be propagated</p>	<p>Committee Chairman for Conservation+ Officer for reliable public relation tool</p>	<p>80</p>												
<p>GOAL 2: PUBLIC AWARENESS OF THE NEED FOR CONSERVATION To develop an awareness of plant species and habitat conservation in order to educate for conservation and inspire future generations by creating a scientifically literate public, maintaining professional skills, and enrich personal lives through increased appreciation of nature</p>														
<p>a) To prepare the pre-conditions for information transfer</p>														
<p>Activity 1: Develop and conduct annual meeting mini-courses or workshops on bromeliad conservation</p>	<p>Committee chairman for Conservation</p>	<p>21+longterm</p>												
<p>Activity 2: Develop and publish a newsletter for the affiliated societies including central aspects of the current conservation status of bromeliads</p>	<p>Committee Chairman for Conservation+ Officer/Director of Affiliated Societies</p>	<p>25</p>												
<p>Activity 3: Encourage existing fellowship programs to include bromeliad conservation as part of their focus</p>	<p>Committee Chairman for Conservation+ Director of Affiliated Societies</p>	<p>longterm</p>												
<p>Activity 4: Create and maintain the Conservation Corner on the BSI website</p>	<p>Webmaster+ Committee Chairman for Conservation</p>	<p>24+longterm</p>												

Activity 4: Publish a list of directories of reputable commercial growers	BSI in general																
c) To promote in situ measures of bromeliad conservation among researchers and aficionados.																	
Activity 1: Publish news on protected areas and especially on bromeliad conservation measures	Committee Chairman for Conservation+ Officer for reliable public relation tool	longterm															
Activity 2: Provide reliable tips of sustainable use of biodiversity and other resources	Committee Chairman for conservation+ Officer for reliable public relation tool	longterm															
Activity 3: Fund viable practicers/projects/activities enhancing the protection of bromeliads in collections and in their habitats brought to the attention of the committee through its wide membership, and by others	Conservation Committee+ BSI Board	longterm															
d) To promote viable ex situ techniques in order to maintain wild populations especially among commercial growers and in the countries of origin of the wild species, in order to protect those plants remaining in the wild.																	
Activity 1: Advocate ex-situ cultivations, seed banking, growing from seed, artificial propagation of bromeliad species, species collection versus hybrids	BSI in general	longterm															
Activity 2: Promote propagation of successfully grown species of existing collections	Committee Chairman for Conservation+ Officer for reliable public relation tool	longterm															
Activity 3: Prove origin of plant material presented at plantshows, especially of specimens that are candidats for awards	BSI Legal Judges	longterm															

Activity 4: Offer a rescue service for lost collections of rare bromeliad species	BSI in general	44+longterm													
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