33 Crossing international boundaries in park management—a survey of transboundary cooperation

DOROTHY C. ZBICZ, Duke University, 119 Thornewood Drive, Cary, North Carolina 27511; dzbicz@duke.edu

Introduction

How are the boundaries in park management to be crossed when those boundaries are not only geographical and political, but also international—when in addition to all the difficulties of transboundary cooperation, issues of national security and sovereignty also enter into the picture? Contrary to reasonable expectations, surprising degrees of transboundary cooperation are occurring between internationally adjoining protected areas around the world. As a continuation of research introduced at the 1999 George Wright Society Conference, this paper presents additional results from an international survey sent to the managers of all the adjoining protected areas around the world. The findings reveal which factors are currently encouraging or inhibiting transboundary cooperation in conservation, and that seemingly insurmountable barriers are being overcome. The case of North American adjoining protected areas, where transboundary cooperation is stronger than in the world at large, tends to confirm the global findings. Evidence of cooperation in park management across international boundaries provides reason for hopefulness that boundaries on a lesser scale, while creating obstacles, may be crossed as well.

Internationally adjoining protected areas—then and now

The paper included in the proceedings of the 1999 GWS Conference introduced a research project on international transboundary cooperation in conservation (Zbicz 1999a). This project was designed around three goals.

1. Identification of all the places in the world where protected areas meet across international boundaries, as examples of internationally divided ecosystems.
2. Design of a framework for the study of transboundary cooperation for conservation, incorporating increasing levels of transboundary cooperation and description of its current state between these internationally adjoining protected areas.
3. Identification of those factors which correlate with increasing levels of transboundary cooperation between internationally adjoining protected areas.

Findings related to the first two goals were presented in the 1999 paper.

In 1997, the author identified 136 complexes of internationally adjoining protected areas, containing 488 individual protected areas in 98 different countries (Zbicz and Green 1997). Twenty-seven of these clusters involved three different countries. An additional 69 complexes with an established protected area on one side of the border and a proposed one on the other side were also identified and listed as proposed complexes. Since developments in transboundary conservation are proceeding at such a rapid pace, an update of this list was recently undertaken. In only four years, the number of internationally adjoining protected area complexes has increased to 169 complexes involving 650 individual protected areas. The complexes involve 113 different countries, with 31 of the complexes involving three

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countries, and one in Europe including four (Zbicz 2001). Much of the increase is attributable to the fact that 29 of the 1997 proposed complexes have now met the criteria to be included on the established list. Interestingly though, almost as many new sites have been added to the proposed list, suggesting that the numbers should keep increasing for several years to come. Table 33.1 shows the increase in complexes broken down by region.

	PACs, 1988	***PACs, 1997***	***PAs, 1997***	***PACs, 2001***	***PAs, 2001***	***Three-nation PACS, 2001***
North America	5	8	42	10	47	0
Central & South America	7	25	93	29	120	6
Europe	20	44	154	64	227	8
Africa	20	33	123	36	151	12
Asia	7	26	76	30	105	5
Total	*59*	*136*	*488*	*169*	*650*	*31*

Table 33.1. Number of internationally adjoining protected area complexes (PACs) and individual protected areas (PAs) by region, 1988-2001.

Transboundary cooperation in conservation

The second phase of the research entailed sending a survey to the managers of these adjoining protected areas, and designing and testing a framework for examining transboundary cooperation in conservation. This resulted in identification of six increasing levels of transboundary cooperation between pairs of adjoining protected areas, with each level including the positive attributes of the lower levels, suggesting that transboundary cooperation proceeds through stages. The six levels are:

- ***Level 0:*** *No cooperation.*
- ***Level 1:*** *Communication*—Information-sharing.
- ***Level 2:*** *Consultation*—Notification of actions.
- ***Level 3:*** *Collaboration*—Active collaboration on several activities and frequent communication and meetings.
- ***Level 4:*** *Coordination of planning*—Planning for the two protected areas as a single ecological unit, sometimes even planning jointly.
- ***Level 5:*** *Full cooperation*—Fully integrated, ecosystem-based planning, with common goals and joint decision-making by a transboundary committee, sometimes even involving joint management.

Identification of the criteria required for each level of transboundary cooperation permitted using the information from the survey responses to classify each pair or dyad of adjoining protected areas at a particular level of cooperation. Degree of cooperation was nicely distributed among the dyads in the study. Although 18% of them show no cooperation, 82% do show that they are cooperating to some degree (Zbicz 1999a). The largest percentage of these, however—39% of the total—are only

cooperating at Level 1 (communication and information-sharing), leaving much room for improvement.

Once the level of cooperation was determined for each pair of adjoining protected areas, then various factors could be tested to see if they inhibit or encourage this cooperation. Fifty-one variables were created from theories of international cooperation and from other studies on transboundary conservation (Hamilton 1996). Simple pairwise correlations were then run with the level of cooperation, and the variables were ranked by their r-values. A Monte Carlo randomization procedure for this number of variables and cases revealed that r-value above .298 could be considered statistically significant at the conservative .01 level. This process has been described in detail elsewhere (Zbicz 1999b). While correlational analysis cannot determine direction of causation, it can show the strength of the relationship between variables. Twenty-five of the variables proved to be significant even at this quite conservative level, while many others would have been included at the .05 level.

Variables and factors

While many of the variables proved to correlate with cooperation, in all probability few of them are operating in isolation. Some of the more interesting observations are the relationships between the variables themselves and how certain groups of variables tend to co-exist. In order to examine this phenomenon, a factor analysis was conducted on sixteen of the significant variables with the highest r-values. This analysis revealed four statistical factors or clusters of variables which were named the *idea factor, the communication technology factor, the leadership factor*, and *the personal contact factor.* The variables loading on each of these factors can be seen in the table below. When combined in a multiple regression model, these four factors are able to explain 59% of the variance in cooperation between pairs of adjoining protected areas (Zbicz 1999b).

Of all the 51 variables, the one with the highest r-value (.538) in its correlation with level of cooperation was "the number of protected areas in a dyad saying that transfrontier cooperation is important to management of that protected area." In fact, 88% of the protected areas responding to the survey said that transfrontier cooperation was important or very important to protected area management. Before adjoining protected areas cooperate, they must share the vision and perceive a need for cooperation. Several other variables also loaded on this factor, as seen in Table 33.2. Valuing ecosystem-based management and biodiversity conservation provide the justification for transfrontier cooperation, but interestingly, valuing the rights of all stakeholders and future generations are also important components of this factor.

The other three factors all illustrate that, like all cooperation, the transboundary version is about human relationships. The *leadership factor* suggests that personal, individual leadership is fundamental, and that the type of leadership required often involves experience with ecosystem-based management. The two other factors both relate to communication. Of any of the four factors, *personal contact* correlates the strongest with level of cooperation, and appears to be especially important at lower levels of cooperation where establishing trust and building relationships are paramount. On the other hand, *communication technology* appears to be more important as higher levels of cooperation are reached and frequent interactions are required. The variable "ability of the staff of the two protected areas to meet face-to-face" has the highest r-value of any variable at .53, yet surprisingly does not correlate significantly with the variable "whether or not the two protected areas are managed from on-site." Somehow, transboundary cooperation occurs even without on-site management as staff go to great lengths to find other ways to meet with their counterparts. Other access variables, such as the existence of a road between the protected areas, travel time between them, and whether or not they speak the same language did not correlate significantly with cooperation.

Variable	*R-value*	*Loading*
The idea factor		
No. of PAs in dyad saying biodiversity conservation important	.427*	.878
No. of PAs in dyad saying including all stakeholders important	.443	.873
No. of PAs saying ecosystem-based management important	.384	.867
No. of PAs in dyad saying conserving resources for future generations important	.296	.789
No. of PAs in dyad saying transfrontier cooperation would improve management of that protected area	.320	.729
No. of PAs in dyad saying ecosystem-based management a benefit of transfrontier cooperation	.344	.665
No. of PAs in dyad saying transfrontier cooperation important	.538	.634
The communication technology factor		
No. of PAs in dyad saying fax available	.424	.854
No. of PAs in dyad saying phone available	.398	.836
No. of PAs in dyad with mail available	.327	.681
No. of PAs saying transboundary communication is difficult	-.414	.640
The leadership factor		
No. of PAs in dyad with an NGO promoting transfrontier cooperation	.399	.755
No. of PA s in dyad with an individual promoting transfrontier cooperation	.423	.750
No. of PAs with staff experienced in ecosystem-based management	.453	.447
The personal contact factor		
No. of PAs in dyad managed from on-site headquarters	.352	.712
PA staff can meet face-to-face	.530	.639
No. of PAs saying transboundary communication is difficult	-.414	.480

* R-values above .298 considered significant at the .01 level.

Table 33.2. Variables loading on four factors.

One factor expected to affect cooperation was how much opposition the protected areas were experiencing, with several survey questions addressing this. Two

questions relating to the "number of protected areas in a dyad experiencing opposition to conservation and experiencing opposition to transfrontier cooperation" both had relatively low r-values (.229 and .032 respectively), indicating that even if a relationship does exist with cooperation, it is weak. An interesting observation, however, was the fact that the signs of both r-values were positive, the opposite of expected. If any correlation does exist, this finding would indicate that the more cooperation taking place, the more opposition is likely to be present. In reality, over 75% of the dyads at Levels 3-5 are experiencing opposition to conservation.

International transboundary cooperation in North America

North America contains 8 complexes of adjoining protected areas in only three countries, with 42 individual protected areas and 16 different dyads. Surveys were received from all of the dyads in North America, and while numbering too few for statistical conclusions, they do permit some observations and comparisons about the distributions. Compared with the global percentages, more high-level cooperation is occurring in North America, with 9 of the 16 dyads cooperating at Levels 4 and 5. An examination of the variables that were significant globally also discloses some differences for North America consistent with higher cooperation. A greater percentage of dyads in North America have both sides saying that transfrontier cooperation, biodiversity conservation, and inclusion of all stakeholders is important. A greater percentage of the dyads in North America also have an individual leader promoting transfrontier cooperation. While 46% of dyads globally know of such an individual, 81% in North America (13 dyads) have such a leader (Figure 33.1). A greater percentage also have non-governmental organizations (NGOs) on both sides of the border promoting transboundary cooperation (Figure 33.2).

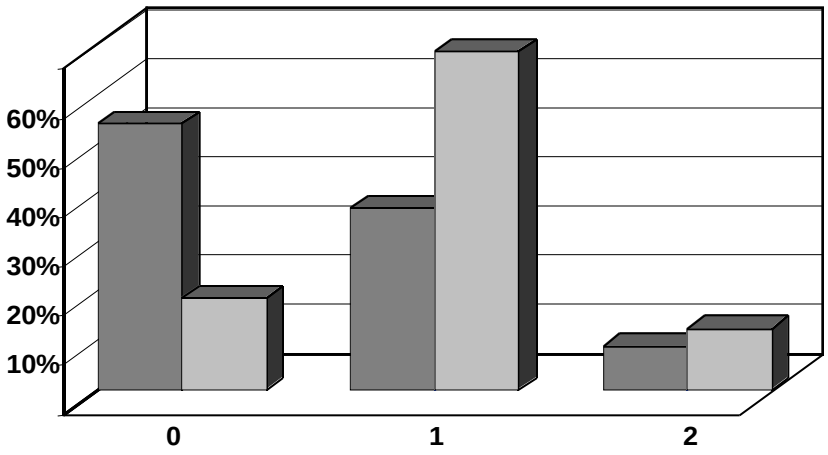

Figure 33.1. Number of protected areas in dyad that know of an individual promoting transfrontier cooperation.

For the *personal contact* factor, the percentage of dyads managed from on-site is very similar for North America and the world. However, a greater percentage of the North American dyads have the ability to meet face-to-face, in spite of a lack of on-site management. All except for one dyad on the continent say that communication is not difficult, and even that one says that it is only moderately difficult. As would be

expected, the availability of communication technology is better for North America than globally, thus making frequent communication easier and better enabling higher levels of cooperation.

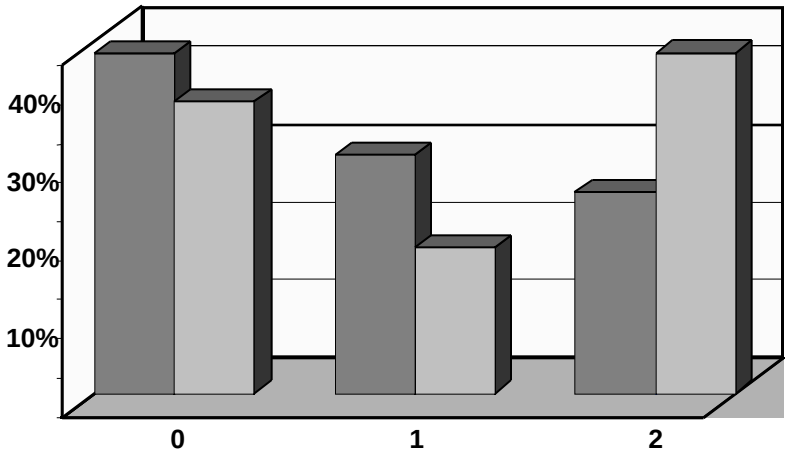

Figure 33.2. Number of protected areas in dyad with an NGO promoting transfrontier cooperation.

Comparing the presence of opposition is also informative. Eight of the dyads in North America have opposition to conservation (three of which experience opposition on both sides of the border), similar to the percentage globally (about 50%). However, six dyads in North America (37%) have opposition to transfrontier cooperation, compared with only 11% globally. It would appear that a greater percentage of adjoining protected areas in North America are facing political opposition to transboundary cooperation than are those around the world. As noted earlier on the global level, though, this may not necessarily prevent cooperation. As true for the study as a whole, opposition appears to co-exist with higher levels of cooperation.

Conclusion

So, what general observations about transboundary cooperation in conservation can be gleaned from this analysis? Although some of the variables tested do indeed correlate strongly with the level of transboundary cooperation, no truly necessary conditions emerged in the study overall. One overriding message is hopeful. Although too many obstacles may overwhelm transboundary cooperation, almost every single obstacle is being overcome in some situation around the world. Transboundary conservation is indeed occurring between internationally adjoining protected areas, even if much of it is still at the lowest levels. The need for increased cooperation remains.

These findings, both globally and for North America, also suggest that some factors are quite important to transboundary cooperation in conservation. Firstly, a shared vision of the need for transboundary conservation must be present to create the desire to cooperate. As with all cooperation, in spite of the desire for high-tech solutions, transboundary conservation is about human relationships. Frequently

complicated and often dependent upon individual personalities, the process often moves much more slowly than conservation would prefer (and sometimes too slowly to take the necessary steps to enable species to survive). Transboundary cooperation can be cultivated and nurtured, but not forced. Individual leadership is critical to the process. Likewise, enabling and fostering communication and face-to-face meetings is essential. Perhaps most hopeful for this conference is the finding that if transboundary cooperation can occur at the international level where the complexities are the greatest, then hope should exist for even better results in situations where cooperation across boundaries of other types is required.

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