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Attitudes of Kansas Agricultural Producers about RIPARIAN AREAS, WILDLIFE CONSERVATION, AND ENDANGERED SPECIES

REPORT OF PROGRESS 830

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

ATTITUDES OF KANSAS AGRICULTURAL PRODUCERS ABOUT RIPARIAN AREAS, WILDLIFE CONSERVATION, AND ENDANGERED SPECIES[1]

Ted T. Cable[2], John A. Fox[3], and James Rivers[2]

ABSTRACT

Riparian forests in Kansas are important areas for many wildlife species. Many agricultural producers use these areas as croplands or as a source of water and forage for livestock. We surveyed agricultural producers in Kansas to assess attitudes toward riparian lands, the wildlife found on them, and the economic considerations associated with conserving these areas. Questionnaires were mailed to a randomly selected sample throughout Kansas during 1997. Of the 2,700 questionnaires mailed, 373 were undeliverable, and 909 were returned by producers, giving a response rate of 39.1%. Most producers (79.3%) reported that none of their grazed streamside land was fenced to prohibit cattle from entering the streambed, and 92.9% reported that their streamside land had not been enrolled in a conservation program within the last 3 years. More than 97% of respondents did not plan to fence their streamside land. Some respondents (35.2%) reported they would fence this land if the costs of fencing materials, labor, and an alternative water supply and a tax refund were paid by a conservation program. Most landowners who reported that they would not fence their land at any price were concerned about fence maintenance after flooding and the partitioning of large tracts of land into smaller, less accessible parcels. Over 38% of producers reported that they set aside land specifically to help wildlife, with an average of 51 acres set aside. Most of them idled their land for quail (96.7%), deer (84.1%), pheasants (82.1%), songbirds (72.4%), and turkey (72.2%). The most important motivation in idling land was watching wildlife, with 51.7% reporting that this was extremely important in their decision. Nearly two-thirds of those who did not set aside land for wildlife were concerned about trespassing. Producers believed that urban growth was the most harmful influence on Kansas wildlife and that legal hunting, fishing, and trapping did not harm wildlife populations. Support for endangered species protection was mixed, with 58.2% of producers agreeing that endangered animals should be protected, 42.7% favoring protection of endangered plants, but only 16.4% favoring state acquisition of land to protect endangered species. Most respondents reported that they would change some or all of their activities around the stream to protect an endangered fish species, but 23.3% indicated that they would not stop farming along the stream. In addition, 56.3% of producers reported that they absolutely or probably would notify the Kansas Department of Wildlife and Parks about the endangered fish, 17.4% were unsure what they would do, and 11.9% would not notify the state agency.

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[1] Contribution no. 99-259-S from the Kansas Agriculture Experiment Station

[2] Professor and graduate student, respectively, Department of Horticulture, Forestry and Recreation Resources, Kansas State University

[3] Assistant Professor, Department of Agricultural Economics, Kansas State University

INTRODUCTION

Riparian forests are important Great Plains ecosystems for three reasons: they control erosion, they assist in the maintenance of water quality, and they provide habitat for plants and animals. They control erosion by slowing water movement and allowing deposition of suspended materials (Geyer et al. 1998). Riparian forests contribute to water quality by absorbing and filtering pollutants and vital nutrients from the water that have the potential to be lost in runoff. During precipitation, they play an important role by absorbing heavy rainfall amounts that, in turn, locally increase the groundwater supply. They also support many plants and animals that otherwise would not be present in this dry, agriculturally dominated landscape. Several species of plants and animals listed by the Kansas Department of Wildlife and Parks (KDWP) as threatened or endangered are associated with streams and riparian woodlands. Because of these benefits, riparian areas should be conserved. However, land-use practices such as cattle grazing and conversion to cropland decrease their biological value (Saab et al. 1995, Hoover 1997).

A previous study showed that Kansas's general population strongly supports wildlife conservation practices, including endangered species protection (Cook and Cable 1996). However, an examination specifically focusing on agricultural producers is lacking. To determine their knowledge, attitudes, and behaviors about conservation practices in riparian areas and endangered species, we conducted a survey of Kansas farmers and ranchers. The objective was to provide information about these existing attitudes and behaviors to conservationists, environmental educators, and policy makers.

METHODS

A 12-page questionnaire was developed and peer reviewed by faculty in the College of Agriculture and the Kansas Wildlife Cooperative Research Unit at Kansas State University (Appendix I). Questionnaires with a cover letter were mailed to 2,700 randomly selected agricultural producers throughout Kansas in 1997. At time intervals of approximately 2 weeks, a postcard reminder and a second questionnaire were sent. Of the 2,700 surveys mailed, 373 were returned as undeliverable, resulting in a total sample of 2,327. From this sample, 909 producers responded, giving an overall response rate of 39.1%.

RESULTS

Characteristics of Respondents and Their Land Use

Responses were received from 104 of the 105 Kansas counties; Clark County was not represented in our sample. The vast majority of respondents were male (91.4%), and their average age was 56 years. Almost two-thirds of the respondents reported farming as their primary occupation (63.4%), and most had children (87.7%). Respondents or their family had owned or operated the present farm for an average of 48.5 years. Respondents reported an average of 13.6 years of schooling, equivalent to a high school degree with a year and a half of postsecondary education (Table 1).

On average, respondents reported owning 519.3 acres and renting 475.6 acres. Of total acres owned, the average proportions were 254.5 acres in cropland; 218.8 acres in rangeland; 12.9 acres in wasteland; 7.5 acres in farmstead, roads, or both; and 19.1 acres in other uses including ponds and waterways, Conservation Reserve Program (CRP) lands, hayfields, windbreaks, and timber lots.

Of total acres rented, average amounts of various land uses included 300.5 acres in cropland; 155.4 acres in rangeland; 8.2 acres considered wasteland; 2.9 acres in farmstead areas or roads; and 8.9 acres in other uses such as hayfields, CRP lands, waterways, and feedlots.

Riparian Land-Use Practices

Landowners were asked if they farmed land along a small stream or river, including streams that are usually dry. Less than half (45.9%) of the respondents reported owning or renting land along a river or stream. From this group, the average length of stream that ran through their land was 1,515 yards. The average length of stream that ran alongside their land was 342 yards.

We considered riparian land to extend back 66 ft. from the bank of the river or stream. Using this width in their calculations, producers, on average, reported farming 26.4 acres of riparian land. These respondents reported that they used their streamside land for year-round grazing (mean = 6.6 acres), summer seasonal grazing (mean = 7.9 acres), and overwintering of livestock (mean = 3.5 acres). Streamside areas not grazed by livestock were in crop production (mean = 4.7 acres), hay production (mean = 1.6 acres), grass or wooded strips used for erosion control (mean = 1.7 acres), timber/fuelwood production (mean = 1.6 acres), and wildlife habitat (mean = 2.5 acres).

The majority (79.3%) of landowners reported that none of their streamside land was fenced to keep livestock out of streambeds. Only 8.3% of them had fenced all of their streamside acres (Table 2). In answer to a question about other measures to prevent stream bank erosion on unfenced acres, about a third (31.6%) of respondents reported using salt blocks and a quarter (25.8%) provided alternative water sources to redistribute grazing pressure away from the streams. About two-thirds reported other activities related to erosion prevention, such as providing temporary access to streams with portable fencing, maintaining the integrity of streamside vegetation, and monitoring grazing levels carefully. Most of the respondents (97.8%) reported that they had no current plans to fence these streamside areas.

Cost Sharing and Compensation for Riparian Habitat Conservation

About half the respondents (53.7%) were aware of state or federal programs providing cost-sharing help for conservation practices on private land, but only 7.7% of this streamside land had been enrolled in a conservation program in the past 3 years. Table 3 presents the percentage of land-owners willing to fence riparian areas under various levels of cost sharing or compensation. Most landowners (64.8%) reported that they would not fence even if the costs of all fencing materials, labor, and alternative water sources were paid for and they received a property tax refund on the fenced land. This reluctance to fence even with subsidies and compensation stemmed from concerns about maintaining fences after flooding and about partitioning large tracts of land into smaller units.

The questionnaire also explained that some groups lease lands to protect wildlife habitat. Producers were asked to reveal the lowest price per acre at which they would be willing to sign a 10-year lease of their streamside land for wildlife habitat conservation. The statement stipulated that producers would not be able to use the land during the lease period nor would the land be open to the public for hunting or any other reason. The question was posed using one of three formats: a) an open-ended format whereby producers were asked for the lowest price per acre per year at which they would enter the lease, b) a discrete choice format in which the respondent answered yes or no to entering a lease at a stated amount of payment, or c) a payment card format in which the respondent indicated the discount or premium they would accept/require relative to current rental rates.

Responses to the open-ended question indicated a median rental value of $50 per acre per year, an amount substantially higher than the median rental values for the same acres ($30/acre for cropland, $15/acre for rangeland). Several responses indicated very high rental rates, with 37.5% requiring $100/acre or more, and 21.0% requesting $1,000/acre or more. These high figures likely reflect an unwillingness to rent the land at any price.

In the discrete choice format, 20.0% reported a willingness to lease their land at 100% of its current rental value, with only 3.8% willing to lease at 75% of its rental value. An additional 5.5% indicated that they would lease at 125% of rental value. The remaining 74.5% were unwilling to lease even at 125% of rental value.

In the payment card format, 69.6% of respondents indicated that they would not lease their land for habitat protection at any price. An additional 9.6% indicated that they would lease at a price at or above 150% of rental value. Only 10% of respondents were willing to lease at or below 75% of current rental value.

Wildlife and the Kansas Producer

More than a third (38.6%) of respondents reported that they idled land or changed management practices specifically to help wildlife. On average, they set aside 51.1 acres for wildlife. These respondents then indicated which kinds of wildlife they tried to help when they idled acres. From a list of choices, responses were as follows: quail (96.7%), deer (84.1%), pheasants (82.1%), songbirds (72.4%), turkey (72.2%), and the open-ended "Other" category (31.1%). These respondents listed a variety of other species, including rabbits, squirrels, raccoons, opossums, foxes, bobcats, coyotes, dove, prairie chickens, ducks, and geese.

Table 4 presents data regarding why landowners set aside land or change management practices to benefit wildlife. The most common "extremely important" motivations were to preserve wildlife for future generations (55.6%) and because the landowner enjoyed watching wildlife (51.7%). The least common motivations identified as "extremely important" were to save endangered species (28.8%) and because the land was difficult to farm (24.9%).

For the 61.4% who reported that they did not set aside land or change management practices for wildlife, their reasons included concerns of trespassing (66.2%), they did not hunt (51.4%), idling land was too costly (47.7%), fear of crop damage (44.0%), or because they simply had never considered setting aside land for wildlife (36.5%). Only 4.7% reported that they did not enjoy watching wildlife.

Producers were asked to indicate level of agreement or disagreement with statements formed by completing the sentence "Not farming or grazing streamside land . . . " (Table 5). The responses to this section indicated that most landowners understand the conservation benefits of protecting streamside lands. They also understand that costs are associated with protection. More than half of the respondents "agreed" or "strongly agreed" with the following outcomes of *not* grazing or farming streamside lands: benefits wildlife (70.6%), filters runoff (68.1%), stabilizes stream banks (65.1%), reduces soil erosion (60.1%), and improves water quality (58.6%). Less than half the respondents (41.4%) agreed or strongly agreed that *not* farming or grazing these areas reduced downstream flooding. Fewer than 5% of the respondents "strongly disagreed" with any of the other statements about the benefits of not grazing or farming streamside lands.

About half (51.6%) agreed or strongly agreed that *not* grazing or farming these areas would reduce annual income and about a third (30.7%) agreed with the statement that it would decrease the value of the farm. Only 12.6% agreed or strongly agreed that *not* farming or grazing streamside acres would cause concerns from neighbors.

Respondents were asked to consider 11 specific actions and indicate their level of support or opposition if that action was known to harm wildlife (Table 6). More than half the respondents supported or strongly supported the following activities, even when they harmed wildlife: making a lake for flood control (60.9%), building a dam for drinking water (54.)%), and straightening a stream for flood control (51.7%). The activity with the least support when it harmed wildlife was building a housing development. Most producers were neutral and fairly evenly divided on the agricultural activities of diverting stream water for crops, converting land to crop production, and using agricultural chemicals when they harmed wildlife.

Producers were asked to give their opinions about activities or materials that might harm Kansas wildlife. The strongest and most widespread agreement regarding threats to Kansas wildlife focused on urban growth and industrial chemicals, with about three-fourths of respondents agreeing or strongly agreeing that these harmed wildlife. They showed widespread recognition that lawn chemicals, agricultural chemicals, draining wetlands, feedlot runoff, and stream channelization harmed wildlife. Conversely, few producers believed that legal fishing, hunting, or trapping were responsible for harming wildlife (Table 7).

Endangered Species and the Kansas Agricultural Producer

Agricultural producers were asked to indicate their agreement or disagreement on a 5- point scale with statements regarding endangered species policy in Kansas. Although a slight majority (58.2%) agreed or strongly agreed that Kansas's endangered animals should be protected, only 27.6%

favored protecting endangered plant species. Fewer than half agreed with statements about the Kansas government taking a more active role in protecting species, and only 16.4% agreed that Kansas should buy more land to protect endangered species (Table 8).

Respondents were given a description of a scenario where only they knew about an endangered fish on their property, and farming activity would threaten the fish's survival. Respondents were asked how they might change the use of their streamside land and whether they would notify the Kansas Department of Wildlife and Parks (KDWP) about this hypothetical rare fish. Less than half (42.3%) of respondents reported that they would change some of their farming activities near the stream, 23.3% would not change their activities, 18.8% would strictly limit their activities, and 6.8% would stop their farming activities completely. When asked if they would notify the KDWP, 33.7% indicated that they probably would notify the agency, 22.6% absolutely would notify the agency, 17.4% were unsure what they would do, and 11.9% said they absolutely would not notify the agency. Only one respondent indicated that he would attempt to eradicate the species.

DISCUSSION AND CONCLUSIONS

Riparian Area Conservation

In many areas of Kansas, riparian areas have been degraded by agricultural production. Overgrazing of streamside areas affects vegetation and erodibility of soils. Farming near these locations may harm water quality and wildlife through increased siltation and chemical runoff.

Although they make up a small percentage of the total land area in Kansas, riparian areas provide many benefits related to water quality and biodiversity. Clearly, agricultural producers play a crucial role in the development of riparian conservation practices. In this survey of Kansas farmers and ranchers, we found that fencing to keep livestock out of streams is not a common practice in Kansas. Only about one in five landowners had fenced any riparian land, and less than one in 10 had fenced all their riparian lands. Nearly all who responded had no plans to fence any of these critical areas. The good news is that roughly two-thirds of the respondents reported that they used several other measures to prevent stream bank erosion.

Only one-third of the respondents set aside or managed land for wildlife. Most of these landowners indicated that the enjoyment of watching wildlife and preserving wildlife for future generations were very important in their decision. Producers felt that legal harvest of wildlife through fishing, hunting, and trapping did not harm Kansas wildlife species. They were neutral on the impact of several agricultural production activities and viewed urban activities as the biggest threats to Kansas wildlife. Results also showed that more than one-third of the respondents had never thought about idling land for wildlife. Perhaps this reflects inadequate dissemination of information about current conservation programs. This should challenge conservation agencies to continue to publicize their efforts.

The majority of farmers and ranchers knew the benefits associated with conserving riparian vegetation but also recognized the associated costs. Because many of the streamside acres are in crop

production or are grazed, adopting conservation practices can have a negative effect on farm income. Accordingly, it is reasonable for landowners to expect to be compensated for adopting these measures. However, even when presented with various compensation options, producers generally were ambivalent about adopting conservation measures such as fencing their riparian lands. The most common reason for not fencing these areas was concern over the long-term maintenance of the fence particularly after flooding events.

Likewise, only one in five landowners would sign a 10-year lease at current rental values to set aside their riparian land for wildlife. Most landowners would not be willing to enter into such a lease agreement even at 125% of the rental value of the land.

This result is surprising given that agricultural producers in Kansas strongly endorse the CRP (Diebel et al. 1994). The success of the CRP for both conservation and farm price support suggests that a similar government program for riparian conservation could play a critical role in saving privately owned riparian areas. However, riparian lands may be more productive and profitable than lands qualifying for the CRP, hence the greater reluctance to take them out of production and lock them up in a long-term lease. If such a program is to be implemented, the time to act is now, because the future of riparian areas in Kansas is at risk.

Endangered Species

A survey by Cook and Cable (1996) found that the general population of Kansans was aware of threatened and endangered plant and animal species and showed strong support for the role that the KDWP played in protecting them. That study also revealed that most Kansans agreed that Kansas wildlife is endangered by agricultural chemicals and conversion of land to agricultural crop production. Over 97% of respondents agreed that habitat should be identified and protected. Moreover, the results showed strong support for endangered species even among those people who had to apply for special permits from KDWP. Of those applicants, 77.8% supported a state endangered species list, 75.0% believed KDWP should continue to protect endangered wildlife and habitat, and 70.8% favored imposing stiff fines for violations.

This survey showed less support for endangered species protection among agricultural producers compared to the general public or those needing government permits to accomplish a potentially damaging action. A slight majority of producers agreed that endangered animal species should be protected. Less than half agreed that the Kansas government should take a more active role in protecting them. When faced with an endangered fish species on their land, producers reported limited willingness to change or stop their activities, even if they threatened survival of the species.

The differences between agricultural producers and the general public are understandable, because agricultural producers derive their income directly from the land. Restrictions on land use may threaten their livelihood, so they will be met with opposition.

Water and wildlife are public resources, yet in Kansas they occur almost exclusively on private land. This study has revealed some of the difficulties faced when policy makers and government entities attempt to manage and conserve public goods on private lands. It demonstrated the challenges of providing incentives and encouragement for landowners to implement riparian conservation programs. Many farmers do not actively provide or enhance habitat for wildlife because of the financial costs and the fear of trespassing or losing control of their land. Conservationists and policy makers must take into account the financial considerations facing producers when they fence off privately owned riparian areas or take other conservation measures. Many producers are willing to preserve riparian areas, if they are compensated for their loss of income and expenditures. Cooperative efforts between government agencies and landowners will be required to protect riparian habitats and the diverse wildlife found within them.

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Table 1. Demographic characteristics of survey respondents.

Characteristic		Percent
Gender		
Female		8.6
Male		91.4
Age		
under 25		.005
25 - 44		20.2
45 - 64		44.6
65 or over		34.8
	Mean =	56.0 years old
Education		
8 - 11 years		4.4
high school diploma		48.7
some postsecondary		18.7
bachelor's		22.0
more than bachelor's		6.1
	Mean =	13.6 years

Table 2. The status of fencing on grazed riparian acres to keep livestock out of streambed.

Status	Frequency	Percent
All riparian acres used for grazing are fenced.	25	8.3
Most, but not all, riparian acres used for grazing are fenced.	11	3.7
About half the riparian acres used for grazing are fenced.	10	3.3
Less than half the riparian acres used for grazing are fenced.	16	5.3
None of the riparian acres used for grazing are fenced.	238	79.3

Table 3. Percentage of landowners who would participate in a program that provided cost sharing for fencing designed to prevent livestock from entering streambed.

If Program Paid for	Percent Willing to Consider Fencing
All of the cost of fencing materials	14.8
Fencing materials and all labor costs	19.7
Fencing materials, labor costs, and the cost of alternative water supply	22.7
Fencing materials, labor costs, alternative water supply, and a property tax refund on the fenced off land	35.2

Table 4. Reasons why agricultural landowners set aside land for wildlife and ranking of importance.

Reason	Not Important (1)	Less Important (2)	Neutral (3)	Important (4)	Extremely Important (5)	Mean
			%			
Protect endangered species	19.4	9.7	23.5	18.2	28.8	3.27
Habitat for hunting	15.4	7.7	17.7	26.6	32.6	3.53
Enjoy watching wildlife	3.4	3.1	11.6	30.1	51.7	4.24
Idled land too difficult to farm	20.9	7.9	27.4	18.9	24.9	3.19
Preserve wildlife for future generations	3.4	2.2	13.5	25.3	55.6	4.28
Duty of humans to protect wildlife	5.3	4.4	18.8	27.4	44.0	4.01
Qualify for a cost-share program	41.7	11.1	21.3	9.3	16.5	2.48

Table 5. Percentage of agricultural producers agreeing or disagreeing with statements about grazing riparian land.

NOT farming or grazing riparian land	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)	Mean
Reduces annual income.	19.5	31.6	37.4	6.8	4.6	2.45
Decreases value of my farm.	13.5	17.2	39.9	22.0	7.4	2.93
Costs too much.	17.2	23.8	42.2	12.3	4.5	2.63
Reduces soil erosion.	23.2	36.9	24.6	9.0	4.3	2.32
Is beneficial to wildlife.	27.6	43.0	21.0	4.5	4.0	2.14
Improves water quality.	21.1	37.5	30.6	7.3	3.4	2.34
Decreases downstream flooding.	13.4	28.0	33.4	17.2	8.0	2.78
Filters runoff.	20.5	47.6	22.4	6.4	3.0	2.24
Helps to stabilize streambanks.	22.4	42.7	23.3	7.2	4.4	2.38
Causes concerns from neighbors.	3.2	9.4	53.4	23.8	10.1	3.28

Table 6. Percentage of agricultural producers supporting or opposing actions when they harm wildlife.

Action	Strongly Support (1)	Support (2)	Neutral (3)	Oppose (4)	Strongly Oppose (5)	Mean
Diverting stream water for crops	4.0	19.1	42.7	25.1	9.1	3.16
Converting land for crop production	4.0	19.4	42.4	24.7	9.6	3.16
Using agricultural chemicals	6.4	28.1	35.1	19.9	10.5	3.00
Building a housing development	1.4	5.9	28.9	31.9	31.9	3.87
Exploring for and developing oilfields	5.0	16.8	38.1	24.3	15.9	3.29
Taking road gravel from a stream	7.9	25.2	44.2	15.9	6.8	2.88
Making an artificial lake for recreation	6.0	25.5	36.8	19.6	12.1	3.06
Making a lake for flood control	15.6	45.3	27.7	6.7	4.7	2.39
Straightening a stream for a highway	5.8	23.1	39.4	19.6	12.0	3.09
Straightening a stream for flood control	11.9	39.8	32.4	9.6	6.2	2.58
Building a dam for drinking water	13.0	41.0	34.8	7.8	3.4	2.48

Table 7. Percentage of agricultural producers agreeing or disagreeing that certain materials or activities harm some Kansas wildlife species.

Material or Activity	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)	Mean
Lawn and garden chemicals	14.4	35.1	26.0	20.9	3.6	2.64
Agricultural chemicals	12.4	43.3	23.5	16.1	4.6	2.57
Industrial chemicals	26.2	51.2	16.5	4.5	1.6	2.04
Legal hunting	4.9	11.9	25.1	40.0	18.0	3.54
Legal fishing	3.7	8.0	28.8	41.3	18.2	3.62
Legal trapping	4.9	9.4	29.9	38.4	17.4	3.54
Runoff from feedlots	15.7	40.3	26.8	13.4	3.7	2.49
Draining wetland	13.2	33.5	31.4	16.3	5.6	2.68
Stream channelization	8.9	23.4	48.0	15.1	4.6	2.83
Clearing stream banks	11.8	35.3	33.5	14.8	4.6	2.65
Urban growth	32.6	40.2	18.4	5.2	3.5	2.07

Table 8. Attitudes of agricultural producers regarding endangered species protection in Kansas.

Policy Statement	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)	Mean
Kansas endangered animals should be protected.	14.8	43.4	26.7	9.7	5.4	2.48
The Kansas government should take a more active role in protecting Kansas endangered animals.	8.8	24.5	35.3	20.5	11.0	3.00
Kansas endangered plants should be protected.	9.6	33.1	34.4	14.9	8.0	2.79
The Kansas government should take a more active role in protecting Kansas endangered plants.	8.2	19.4	38.4	22.3	11.7	3.10
The State of Kansas should buy more land to support endangered species of plants and animals.	6.2	10.2	24.1	27.5	31.9	3.69

Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan 66506

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