Black Bear Management Report and Plan, Game Management Unit 14C:

Report Period 1 July 2013–30 June 2018, and

Plan Period 1 July 2018–30 June 2023

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Alaska Department of Fish and Game Division of Wildlife Conservation

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Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Jeff Selinger, Management Coordinator for the Division of Wildlife Conservation.

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Please contact the authors or the Division of Wildlife Conservation at (907) 465-4190 if you have questions about the content of this report.

Cover Photo: Black bear cubs of the year in Anchorage, AK. ©2019 ADF&G. Photo by David Saalfeld.

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Purpose of this Report

This report provides a record of survey and inventory management activities for black bear (*Ursus americanus*) in Game Management Unit (Unit) 14C for the 5 regulatory years 2013–2017 and plans for survey and inventory management activities in the following 5 regulatory years 2018–2022. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY14 = 1 July 2014–30 June 2015). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to report more efficiently on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the black bear management report of survey and inventory activities that was previously produced every 3 years.

I. RY13–RY17 Management Report

Management Area

Unit 14C is located in Southcentral Alaska and encompasses approximately 1,961 mi^2. The boundaries of Unit 14C closely approximate those of the Municipality of Anchorage (MOA), with the Knik River forming the norther border of the unit, the Chugach Mountains along the eastern border, and the Upper Cook Inlet (including Turnagain Arm) forming the western and southern boundaries. MOA is a mosaic of both undeveloped wildlife habitat and large areas of human development. Most of MOA is characterized by large tracts of natural lands, including Chugach State Park, Chugach National Forest, Anchorage Coastal Wildlife Refuge, and Joint Base Elmendorf-Richardson (JBER, a 131 mi^2 military base). However, even highly developed portions of MOA support wildlife in vegetated greenbelts, stream corridors, and large municipal parks. As a result, bears occupy most areas of MOA and Unit 14C.

While black bears are present across the entirety of Unit 14C, seasonal use of specific habitat types likely occurs in relation to availability of preferred forage items. In spring, black bears largely forage on emergent vegetation present in subalpine meadows, avalanche chutes, and within snow-free patches of low-elevation shrubs and forests. Despite the majority of the unit consisting of mountainous glacial valleys, predominant habitat types include mixed forests (i.e., coniferous and deciduous), dense conifer forests (e.g., *Tsuga, Picea* spp.), dense deciduous forests (e.g., *Betula, Populus* spp.), and subalpine shrubs (e.g., *Salix, Alnus* spp.). Moose also utilize many of these habitat types, and moose calves represent a primary food source for both black and brown bears during the months of May through July.

In addition to a variety of forest ecotypes, Unit 14C contains many riparian corridors with 10 anadromous streams yielding runs of coho, Chinook, chum, and pink salmon. Coinciding with late-summer salmon runs, berries including low and highbush blueberry (*Vaccinium* spp.), low and highbush cranberry (*Vaccinium, Viburnum* spp.), crowberry (*Empetrum* spp.), raspberry (*Rubus arcticus L.* spp.), and devil's club berry (*Oplopanax horridus*) represent important forage items for black bears as they enter hyperphagia prior to denning. Consequently, black bears in Unit 14C have been observed denning across a wide range of elevations and habitats; and pre-denning food items likely represent available forage near specific den locations.

Summary of Status, Trend, Management Activities, and History of Black Bear in Unit 14C

Despite the relatively small amount of developed habitat, the Unit 14C black bear population is affected by habitat fragmentation, urbanization, and associated human activities. These factors have contributed to human-black bear conflicts and other interactions with humans. Most of these conflicts are caused by negligent storage of garbage, birdseed, and pet or livestock food. Consequently, ADF&G management staff and enforcement agency personnel devote a large portion of the summer and fall towards mitigating human-bear conflicts in Unit 14C.

Because most of the black bear hunting opportunities in Unit 14C exist outside of the Anchorage Management Area and Chugach State Park, and a limited trail network provides access to more remote portions of the unit, hunter harvest has been stable across years. However, because Unit 14C has the highest human population in the entire state (approximately 40% of the Alaska human population), hunter harvest must be carefully monitored to ensure sustainable harvest thresholds are not exceeded.

Management of black bears in Unit 14C involves a combination of population management through regulated hunting, public education on responsible living and recreating in bear country, participation in land management decisions affecting bear habitat, and responses to human-bear conflicts.

Management Direction

Existing Wildlife Management Plans

Direction for the management of Unit 14C black bears was outlined in the Southcentral Alaska Wildlife Management Plan (ADF&G 1976) and has been reviewed and modified through public comments, staff recommendations, and Board of Game actions over the years. A record of these changes can be found in the division's management report series. The plan portion of this report contains the current management plan for black bear in Unit 14C.

Goals

The management goals in Unit 14C are to provide an opportunity to hunt black bears under aesthetically pleasing conditions and to provide an opportunity to enjoy black bears through viewing and photography.

Codified Objectives

None.

Amounts Reasonably Necessary for Subsistence Uses

Not applicable.

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

- Maintain a population largely unaffected by human harvest.
- Provide liberal opportunities to hunt black bear with an annual total harvest of less than 42 black bears of which no more than 8 are sows.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

Several factors preclude the employment of aerial survey techniques to determine population status and trend. These factors include, but are not limited to, terrain, foliage density, canopy density, and air space classification. Given these factors, Unit 14C will likely never be suitable for aerial based population survey techniques. Until new ground or aerial techniques are developed, the monitoring of hunter harvest and other mortality (roadkill, agency kills, and defense of life or property kills (DLP) will continue to be used as an index of the population status of black bears in Unit 14C.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor mortality and harvest in Unit 14C annually.

Data Needs

Monitoring harvest data provides management biologists with a rough index of population status and a method to determine if we are meeting management objectives.

Methods

We monitored black bear mortality through hunter harvest reports and sealing data (i.e., skull measurements, age, and location data). All nonhunting mortality (vehicle, railroad strikes, DLPs, and agency kills) was monitored through ADF&G required reporting in concert with records from the Alaska Department of Public Safety and the Alaska Railroad.

Season and Bag Limit

Table 1. Season dates and bag limits for black bear in Unit 14C from regulatory years 2013–2015, Southcentral Alaska.

Area	Season date	Bag limit
Lower Eagle River Valley	Day after Labor Day–31 May	1 bear
Upper Eagle River Valley	Day after Labor Day–15 June	1 bear
Remainder of Eagle River, JBER, Anchorage, and Birchwood management areas	No open season	–
Chugach State Park management area	Day after Labor Day–31 May	1 bear
Eklutna management area	Day after Labor Day–31 May	1 bear
Remainder of 14C	No closed season	1 bear

Table 2. Season dates and bag limits for black bear in Unit 14C from regulatory years 2016–2017, Southcentral Alaska.

Area	Season date	Bag limit
Lower Eagle River Valley	Day after Labor Day–31 May	1 bear
Upper Eagle River Valley	Day after Labor Day–15 June	1 bear
Remainder of Eagle River, Anchorage, and Birchwood management areas	No open season	–
JBER[1]	15 April–15 June	1 bear
Chugach State Park Management Area	Day after Labor Day–31 May	1 bear
Eklutna Management Area	Day after Labor Day–31 May	1 bear
Remainder of 14C	No Closed season	1 bear

[1] Joint Base Elmendorf-Richardson.

Results and Discussion

From RY13–RY15, there were 2 registration hunts and 1 general season hunt for black bear in Unit 14C. In RY16, a drawing permit black bear hunt on Joint Base Elmendorf-Richardson (JBER) was added (Table 3, Fig. 1).

Table 3. Harvest and hunter participation for regulatory years 2013–2017 for black bear drawing, registration, and general season hunts in Unit 14C, Southcentral Alaska.

Area Hunt number	Regulatory year	Permits/tags issued	No. of hunters	Percent success	No. of females harvested	Total harvest[a]
Lower Eagle River Valley RL450	2013	46	7	–	–	0
	2014	39	10	–	–	0
	2015	39	7	–	–	0
	2016	30	8	–	–	0
	2017	29	5	–	–	0
Upper Eagle River Valley RL460	2013	105	39	3%	0	1
	2014	108	48	13%	4	8
	2015	106	46	15%	1	7
	2016	84	42	17%	4	7
	2017	93	38	8%	2	3
JBER DL455	2013	–	–	–	–	–
	2014	–	–	–	–	–
	2015	–	–	–	–	–
	2016	25	8	38%	3	3
	2017	25	8	13%	0	1
General Season Eklutna and Chugach State Park management areas and the remainder of Unit 14C	2013	180	180	16%	10	29
	2014	172	172	16%	10	28
	2015	157	157	12%	5	18
	2016	157	157	18%	13	28
	2017	185	185	19%	12	35

Note: En dashes represent "not applicable".
[a] Total does not include bear of unknown sex.

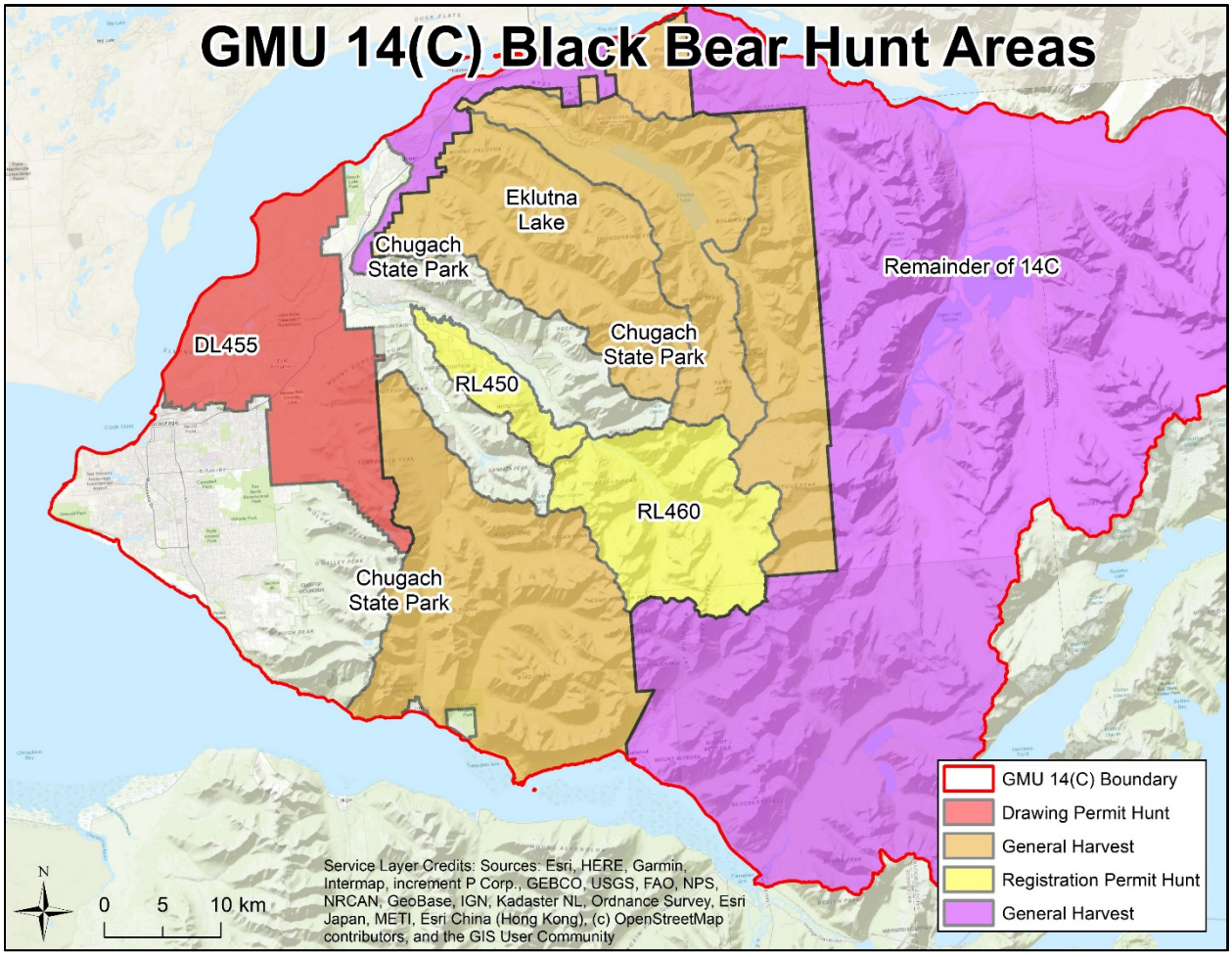

Figure 1. A map of the Unit 14C black bear hunt areas, including general season, RL450, RL460, and DL455.

Harvest by Hunters

During RY13–RY17, hunters in Unit 14C harvested 33 black bears per regulatory year on average, with the total harvest ranging from 25 in RY15 to 39 in both RY16 and RY17 (Table 3). Using the RY10–RY13 management objectives (Battle and Coltrane 2014), the only year during RY13–RY17 in which the yearly female harvest objective was not exceeded was in RY15.

Permit Hunts

Drawing permit hunt DL455 was implemented in RY16 and has yielded limited success. Several factors impact the success of this hunt, including the hunt being restricted to a spring season (15 April–15 June) and the closure of training areas by the military. Based on the first 2 years of data from this hunt, we believe that adding a fall season may help increase harvest and help mitigate the impacts of training area closures.

Hunter Residency and Success

Resident hunters comprised 88% (982 of 1,116) of the black bear hunters during this reporting period (RY13–RY17; Table 4). Overall, there was a 15% success rate among black bear hunters in Unit 14C.

Table 4. Hunter residency for all Unit 14C black bear hunts, regulatory years 2013–2017, Southcentral Alaska.

Regulatory	Successful			Unsuccessful			Total
year	Resident	Nonresident	Total (%)	Resident	Nonresident	Total (%)	hunters
2013	24	6	30 (13)	175	18	193 (87)	223
2014	26	10	36 (15)	182	28	210 (85)	246
2015	19	6	25 (12)	170	18	188 (88)	213
2016	30	5	35 (17)	153	18	171 (83)	206
2017	32	6	38 (17)	171	19	190 (83)	228
Total	131	33	164 (15)	851	101	952 (85)	1,116

Other Mortality

Other reported human-caused mortality averaged 20 black bears per year during RY13–RY17, with the highest mortality in RY17 at 38 black bears (Table 5).

Table 5. Reported nonhunting mortality for black bear in Unit 14C, regulatory years 2013–2017, Southcentral Alaska.

Regulatory year	DLP[a]	Agency kill	Vehicle	Other[b]	Total
2013	4	1	6	0	11
2014	11	8	2	3	24
2015	9	2	3	1	15
2016	4	8	1	2	15
2017	16	14	4	4	38

[a] Defense of life or property.
[b] Includes known railroad strikes, reported illegal kills, reported natural kills, and unknown causes of death

In RY16, there were 2 brown bear attacks and a black bear-caused human fatality just outside of Anchorage. We suspect that the large increase in nonhunting mortality was in response to the public having less patience and tolerance with all bears in and around Anchorage following the human fatality in June of 2017.

Alaska Board of Game Actions and Emergency Orders

In 2015 the Board of Game (BOG) authorized the creation of a shotgun only black bear hunt within the Joint Base Elmendorf-Richardson (JBER) Management Area in Unit 14C; the DL455 drawing permit hunt was implemented in RY16.

There were no Board of Game actions in 2013, 2014, 2016, or 2017.

There were no emergency orders issued for black bear in Unit 14C during RY13–RY17.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

No habitat assessment or enhancement projects for black bear were conducted in Unit 14C during RY13–RY17.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

As the population of Anchorage continues to grow and development expands into green space, open communication between shareholders and landowners is becoming more and more critical. The Anchorage Bear Committee (ABC) was established by ADF&G in 2002 to help bring shareholders and agencies that operate in and around the Anchorage bowl together to build working relationships which help mitigate human-bear conflicts. This committee should be continued.

As Anchorage's population continues to grow, there is an increasing amount of available trash and other attractants for bears, coupled with a continued lack of interest from some members of the public to secure such attractants. This leads to bears being drawn into close proximity to houses, schools, and neighborhoods, which leads to increased human-bear conflicts. Department staff provide educational opportunities throughout the year on being "bear aware". Many Anchorage residents are proficient at living in bear country, yet there are always new people moving to the area, and some longtime residents who seem unwilling to change their behavior with regard to attractants. New approaches or more creative means of delivering bear safety messages should be identified, in order to better reach the public.

Anchorage staff have historically entered reports of wildlife conflicts on datasheets, which were only intermittently entered into various databases. During RY13–RY17, a statewide wildlife conflict database was implemented, allowing for much better tracking of wildlife conflicts. This system should be continued and improved. One improvement would be to modify the system so that maps could automatically be generated based on parameters entered by staff. So far, staff have been exporting data into ArcGIS and producing custom maps when needed, but real time mapping of this information would allow bear-human conflict "hot spots" to be identified on a more frequent basis and help focus the limited Department resources on bear aware education and conflict management in specific problem areas.

While multiple factors contribute to human-bear conflicts, the primary driver for human-bear conflicts in Anchorage is the amount of unsecured trash that is available to bears. Currently, the MOA does not have any solid waste ordinances that provide strong guidance for handling trash. Also, the MOA has conflicting trash ordinances currently in place which leads to confusion and reluctance on the part of Code Enforcement to enforce these ordinances. To help change the public perspective on trash and how to safely handle trash in bear country the MOA should revisit current trash ordinances and provide clearer rules on how trash is to be handled. While mandating bear-resistant tipper carts would be the ideal choice for the entire MOA, the department recognizes that there could be issues (e.g., difficulty in obtaining and maintaining

enough bear-resistant carts for the entire municipality) with such a mandate. We recommend that in areas where the department is consistently documenting human-bear conflicts, that bear-resistant tipper carts be required in order to help mitigate conflicts.

To help address human-bear conflicts from the standpoint of wildlife management biologists, we would like to investigate social learning in bears. Management-related projects could be implemented to ascertain whether cubs that are shown anthropogenic food sources by their mothers continue to focus mainly on anthropogenic food sources as subadults and adults or whether these bears will primarily target natural food sources when they disperse.

Data Recording and Archiving

- Black bear harvest reports and sealing records are stored in the ADF&G' s Wildlife Information Network (WinfoNet) database.

- Management black bear capture data is stored in the WinfoNet database. Field datasheets are stored in the Anchorage Region II ADF&G office building in office 2004.

- Reports of black bear (and other wildlife) conflicts are recorded and stored in the Wildlife Encounter database (https://www.adfg.alaska.gov/index.cfm?adfg=reportwildlifeencounter.main). Members of the public can enter reports on our website and staff enter reports and record actions taken using the staff entry form on our intranet.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

In every year other than RY15, more than 8 female black bears were harvested. Recent studies suggest that black bears can be sustainably harvested at higher rates than previously recommended, and that black bear populations can recover from short periods of overharvest (Mace and Chilton-Radandt 2011). Unfortunately, we have no data concerning black bear population numbers, vital rates, or population dynamics for Unit 14C. Furthermore, we do not fully understand the movements of bears between the urban-wilderness interface. It is difficult to evaluate population level effects through harvest numbers alone. We recommend continuation of age data collection from harvested individuals so that we can evaluate the type of harvest occurring in Unit 14C and possibly assess the impacts of harvest on the black bear population.

As previously mentioned, most bear-human conflicts in Unit 14C are related to improper storage of garbage, pet/livestock food, and unsecured livestock (i.e., chickens). Food conditioning of individual bears often results in defense of life or property kills. Furthermore, reactions to mauling events by the public may increase the number of bears killed each year. For example, in

2017, 3 maulings (1 black bear and 2 brown bear) occurred in MOA, which coincided with a record high nonhunting, human-caused mortality rate for black bears (Table 5). As stated above, we recommend that ADF&G work with MOA to rework the current trash ordinance and help modify the refuse attractant handling behavior of the public in MOA.

Education and enforcement of state wildlife regulations are critical steps toward achieving the goal of reducing bear-human conflicts in Unit 14C. We recommend that ADF&G continue to educate the public about bear safety and how to avoid human-bear conflicts in and around the Anchorage bowl.

In the black bear management report of survey-inventory activities 1 July 2010–30 June 2013, Unit 14C (Coltrane and Battle 2014), changes to management objectives were proposed, and are being implemented in RY18–RY22. One of the changes proposed in the 2014 report was to "provide opportunities to hunt black bears with an annual harvest comprised of no more than 40% females" (Coltrane and Battle 2014). During RY13–RY17, that percentage was only exceeded in RY16. In comparison to the former harvest objective used in RY13–RY17 and prior (annual total harvest of less than 42 bears, not exceeding 8 sows), this alternative harvest threshold of no more than 40% females appears to reflect a more sustainable harvest strategy for the black bear population in Unit 14C.

II. Project Review and RY18–RY22 Plan

Review of Management Direction

MANAGEMENT DIRECTION

Without unit-specific demographic data to inform management decisions, we must rely on harvest, roadkill, and DLP information to define sustainable harvest practices. Because harvest was consistently stable across RY13–RY17 but included a higher proportion of females within the total harvest, we will manage for an annual harvest comprised of no more than 40% females for RY18–RY22.

GOALS

The management goals in Unit 14C are to provide an opportunity to hunt black bears under aesthetically pleasing conditions and to provide an opportunity to enjoy black bears through viewing and photography.

CODIFIED OBJECTIVES

None.

Amounts Reasonably Necessary for Subsistence Uses

Not Applicable.

Intensive Management

Not Applicable.

MANAGEMENT OBJECTIVES

Due in part to the lack of population-specific data on black bears in Unit 14C, management objectives are being modified for RY18–RY22. The new management objectives are as follows:

- Mitigate human-black bear conflicts in urban areas through education, research, and management activities to promote public safety.
- Maintain a population that provides opportunities to hunt black bears with an annual harvest comprised of no more than 40% females.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

Several factors preclude the employment of aerial survey techniques to determine population status and trend. These factors include but are not limited to terrain, foliage density, canopy density, and air space classification. Given these factors, Unit 14C will likely never be suitable for aerial based population survey techniques. Until new ground or aerial techniques are developed, monitoring of hunter harvest and other harvest (roadkill, agency kills, and defense of life or property) continues to provide our best information on the black bear population in Unit 14C.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor mortality and harvest in unit 14C annually.

Data Needs

No change from RY13–RY17.

Methods

No change from RY13–RY17.

3. Habitat Assessment-Enhancement

No change from RY13–RY17.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

No change from RY13–RY17.

Data Recording and Archiving

- Black bear harvest reports and sealing records are stored in ADF&G's WinfoNet database.

- Management black bear capture data are stored in the WinfoNet database. Field datasheets are stored in the Anchorage ADF&G building in office 2004.

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Agreements

None.

Permitting

ADF&G Collection Permit.

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