Quantitative Analysis of Disparities In Juvenile Delinquency Referrals To the Fairbanks North Star Borough, FY2005-06

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Quantitative Analysis of Disparities In Juvenile Delinquency Referrals To the Fairbanks North Star Borough, FY2005-06

Executive Summary

This report begins with a broad overview of the level of disproportionate minority contact in the Alaska juvenile justice system for youth who were referred to the Fairbanks office of the Division of Juvenile Justice during fiscal years 2005 and 2006 (July 1, 2004, to June 30, 2006). The possible sources of disproportionate minority contact are subsequently narrowed by examining the impact of race and ethnicity, gender, type of referral, and geography. More specifically, we examine whether disproportionate minority contact occurs (1) for all minority youth, (2) for both males and females, (3) for both youth referred for new crimes and youth referred for conduct or probation violations, and (4) throughout the Fairbanks North Star Borough or in specific geographical areas within the Borough. By developing a detailed understanding of the scope of disproportionate minority contact, we become much better prepared to identify its causes and to develop promising evidence-based solutions.

It is important to emphasize that this report examines disparities in the referral process, but does not explain these disparities. In addition, this report does not examine disparities within the juvenile justice system. Rather, the sole purpose of this report to is to more narrowly identify the greatest sources of disproportionate minority contact, or referrals to the Division of Juvenile Justice.

The sample in this analysis included 1,049 youths who were referred to the Division of Juvenile Justice (DJJ) in Fairbanks during fiscal years 2005 and 2006 for new crimes, probation violations, or conduct violations. The sample included 1,049 referrals for 657 non-duplicated youth. Of these 657 youth, the majority (70%) were referred only once. The others (referred multiple times) accounted for 591 (56%) of the 1,049 referrals.

Key results indicated that:

- The majority of referrals for new crimes were for White youth. More specifically, 49% of referrals for person crimes, 56% of referrals for property crimes, and 58% of referrals for other crimes were for White youth.
- However, only 39% of referrals for probation or conduct violations were for White youth. The majority of referrals for probation or conduct violations were for minority youth. This was particularly true for Native youth.
- Among minority youth, most referrals were for Native youth. They represented 30% of the referrals for person crimes, 29% of the referrals for property crimes, 28% of the referrals for other crimes, and 47% of the referrals for probation or conduct violations.

- Black youth were the only other racial / ethnic group that significantly contributed to the volume of referrals. They represented 13% of the referrals for person crimes, 10% of the referrals for property crimes, 9% of the referrals for other crimes, and 11% of the referrals for probation or conduct violations.
- While males greatly outnumbered females in the numbers of referrals, race distributions did not vary by gender.

Disproportionate minority contact was then examined through the use of rates and relative rates indices. Key results indicated that:

- White youth were under-represented in referrals to DJJ. While 74% of the at-risk population was White, only 53% of referred youth were White.
- Conversely, Black and Native youth were over-represented in referrals to DJJ. This was particularly true for Native youth. While 9% of the at-risk population was Native, 30% of referred youth were Native.
- Black youth were referred to DJJ at significantly higher rates than White youth. More specifically, Black youth were 2.62 times more likely to be referred to DJJ than White youth. Black youth were disproportionately referred for all types of referrals. However, this was only true for Black males. Black females were not disproportionately referred to DJJ.
- Native youth were referred to DJJ at significantly higher rates than White youth. More specifically, Native youth were 4.96 times more likely to be referred to DJJ than White youth. All Native youth, both male and female, were disproportionately referred to DJJ for all types of referrals. The two highest levels of disproportionate minority contact were found for Native males referred for probation or conduct violations and for Native females referred for probation or conduct violations.
- Efforts to curb disproportionate minority contact in the Fairbanks North Star Borough must focus on Native youth (both male and female) and on Black male youth. These groups experience significantly higher rates of referral for every type of referral, but most prominently for probation and conduct violations.

The geographic distribution of disproportionate minority contact for all minority youth, Native youth, and Black youth was then explored. Key results indicated that:

- There was a great deal of variability across census tracts in the extent to which disproportionate minority contact occurred, for whom, and for what type of referral.
- Overall, in half of the Fairbanks North Star Borough census tracts, Native youth were at least four times more likely to be referred to DJJ than White youth. This was generally true for both males and females and for all types of referrals (i.e., person crimes, property crimes, other crimes, and probation or conduct violations).
- Overall, in half of the Fairbanks North Star Borough census tracts, Black youth were at least three times more likely to be referred to DJJ than White youth. This was generally true only for males and was generally true for all types of referrals (i.e., person crimes, property crimes, other crimes, and probation or conduct violations).

- Again, the highest levels of disproportionate minority contact were found with referrals for probation and conduct violations. But even for those referrals, there were some census tracts where disproportionate minority contact was not found.

Overall, disproportionate minority contact was most prevalent for two racial groups – Native and Black youth. Among Black youth, disproportionate minority contact was most prevalent for males. As a result, successful interventions for disproportionate minority contact should focus on Native males, Native females, and Black males. In addition, successful interventions for disproportionate minority contact should focus on referrals for probation or conduct violations, as these were repeatedly characterized with the highest levels of disproportionate minority contact. Finally, it was clear that disproportionate minority contact was most prevalent in certain census tracts. Again, successful interventions should target the greatest sources of disproportionate minority contact, such as these census tracts.

Quantitative Analysis of Disparities In Juvenile Delinquency Referrals To the Fairbanks North Star Borough, FY2005-06

In this report, we begin the process of identifying disproportionate minority contact in the juvenile justice system for youths referred to the Fairbanks office of the Division of Juvenile Justice. To do so, we begin with a broad overview of the level of disproportionate minority contact in Fairbanks for Black youth, Native youth, Asian youth, Pacific Islander youth, multiracial youth, other minority youth, and Hispanic youth. We subsequently narrow the sources of disproportionate minority contact by examining the impact of gender, type of referral, and geography. More specifically, we examine whether disproportionate minority contact is limited to one gender group, specific types of referrals, and certain geographical locations. All analyses examine six minority racial groups (Black, Native, Asian, Pacific Islander, multiracial, and other minority) and one ethnic group (Hispanic). By narrowing the source of disproportionate minority contact, we can then begin the process of developing informative and empirically based solutions.

Disproportionate minority contact occurs when minority youth are more likely than their White counterparts to be referred to the Division of Juvenile Justice. Rates of referral to the juvenile justice system are therefore compared across racial and ethnic groups to determine if the rates of referral for minority youth are significantly higher than the rates of referral for White youth. Not surprisingly, given the prior research in Alaska, we again find significant disparities in referral rates across racial and ethnic groups. As shown in several identification studies performed by the Division of Juvenile Justice and the Justice Center at the University of Alaska Anchorage, there are clear, convincing, and undeniable disparities in the referral of minority youth to the juvenile justice system.

However, what remains unclear is the boundary or scope of disproportionate minority contact. More specifically, we do not know if disproportionate minority contact occurs for all minority youth or only for minority youth in specific racial or ethnic groups. We also do not know if disproportionate minority contact occurs for both males and females, for males only, or females only. Similarly, we do not know if disproportionate minority contact occurs for youth referred for new crimes, youth referred for probation and conduct violations, or both. Finally, we do not know if disproportionate minority contact occurs throughout the Fairbanks North Star Borough or is concentrated in specific geographical areas within the borough. These more detailed specifications are a necessary and important component to a thorough and accurate assessment study.

As stated in the OJJDP DMC Technical Assistance manual, the focus of an assessment study is "on ***why*** *minority overrepresentation exists*" (emphasis added). Before explaining why minority overrepresentation exists, it is critical that we obtain a better understanding of the scope of minority overrepresentation. If disproportionate minority contact occurred only in one racial group (or in only one gender group), the causes of and solutions to disproportionate minority contact should then focus on this group. Disproportionate minority contact would then occur either because of this group's characteristics (e.g., they offend at a higher rate) or because of the justice system's

response to this group (e.g., more punitive responses are utilized against this group). Similarly, if disproportionate minority contact occurred only for youths referred for new crimes, focusing on referrals for probation or conduct violations would not help us reduce disproportionate minority contact. Finally, if disproportionate minority contact occurs only in specific areas of the Fairbanks North Star Borough, then our efforts should naturally focus on these specific areas. We should focus on both the characteristics of these areas (e.g., lack of pro-social opportunities for youth) and characteristics of justice responses to these areas (e.g., greater likelihood of formal rather than informal social controls). Reducing disproportionate minority contact elsewhere would have little effect on overall rates of referral for minority youth. To be most effective, reductions in disproportionate minority contact should concentrate on the greatest sources of disproportionate minority contact. In this report, we begin to identify the greatest sources of disproportionate minority contact by determining whether these sources are found in specific racial or ethnic groups, in a specific gender group, for specific types of referrals, or in specific geographical areas.

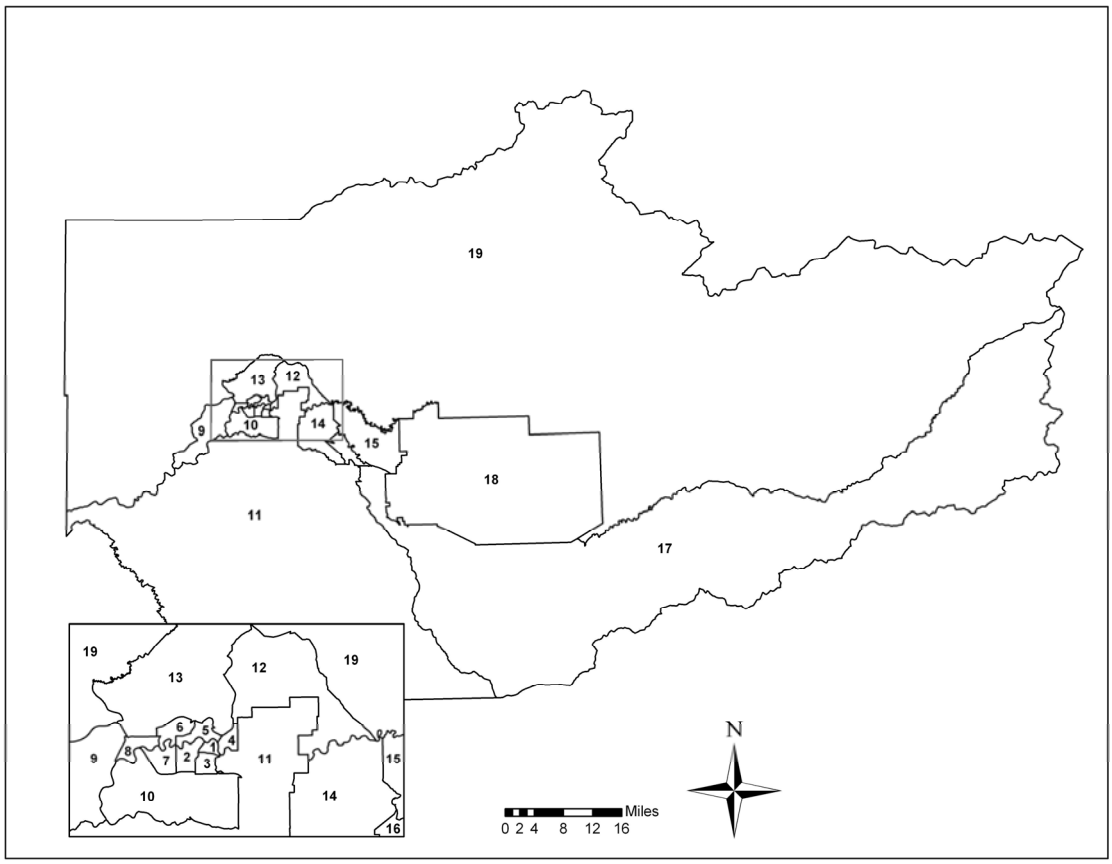
It is important to emphasize that this is only the beginning of an assessment study. This report does not explain why disproportionate minority contact exists. Furthermore, this report does not examine disparities that may occur within the juvenile justice system. Rather, it more narrowly defines disproportionate minority contact (i.e., disproportionate referral of minority youth) so that our efforts to determine causes of, and find solutions to, disproportionate minority contact are more fruitful. By guiding these efforts with a more detailed understanding of the scope of disproportionate minority contact, we will be much better prepared to identify causes and solutions.

Before discussing results, we provide details on the sample and sources of data. The sample includes youths who were referred to the Division of Juvenile Justice (DJJ) in Fairbanks during fiscal years 2005 and 2006 for new crimes, probation violations, or conduct violations. Sources of data include geographic data, census data, and juvenile justice data. The methodology includes the calculation of volume statistics, rates, relative rate indices, Empirical Bayes rates, and relative Empirical Bayes rate indices. These indices are summarized and presented with descriptive and inferential statistics. After presenting detailed findings, we conclude with both a summary of key findings and an outline of future endeavors to delve deeper into a formal assessment study.

Sample and Data

The sample selected for this quantitative analysis of disparities in juvenile delinquency referrals included all youths referred to the Division of Juvenile Justice in Fairbanks in fiscal years 2005 and 2006 (July 1, 2004 to June 30, 2006). Three sources of data were utilized – geographic, census, and juvenile justice data. Each is now described in greater detail.

Figure 1. Census Tracts for Fairbanks North Star Borough



Geographic Data

All geographic data were obtained from an ArcMap shapefile of census tracts for the Fairbanks North Star Borough which is publicly available from the Borough's Geographical Information System (GIS; http://gis.co.fairbanks.ak.us/). The analysis contained in this report uses census tract as the spatial unit of analysis. Census tracts are defined by the U.S. Census as "small, relatively permanent statistical subdivisions." The Fairbanks North Star Borough (FNSB) contains 19 census tracts (see Figure 1). These 19 census tracts vary greatly in size and population. The smallest tract (tract 1) contains an area of less than one square mile (0.59 square miles) while the largest (tract 19) contains an area of 4,100 square miles. The least populated tract (tract 17) includes 1,128 inhabitants while the most populated tract (tract 19) includes 8,253 inhabitants. On

average, the 19 tracts include 4,360 inhabitants in an area of approximately 19 square miles. Population density varies even more across tracts than population size. Population density ranges from 0.82 inhabitants per square mile (tract 17) to 4,302 inhabitants per square mile (tract 5). The median population density is 209 inhabitants per square mile. Stated differently, half of the census tracts have a population density below 209 inhabitants per square mile (while half have a population density above 209 inhabitants per square mile).

Of course, not every resident is at-risk of being referred to the Division of Juvenile Justice. Residents are considered to be at-risk of being referred to the Division of Juvenile Justice if they are youth between the ages of 10 and 17. The number of at-risk youth varies from a low of 120 in Tract 1 to a high of 1,157 in Tract 16. On average, there are 570 at-risk youth per tract. The density of at-risk youth varies even more dramatically. Tract 17 has the lowest density of at-risk youth with only 0.11 at-risk youth per square mile, while Tract 5 has the highest with 599.5 at-risk youth per square mile. On average, there are 33 at-risk youth per square mile.

Census Data

Demographic data for each census tract were obtained from Summary File 1 of the 2000 U.S. Census (http://www.census.gov). Summary File 1 includes detailed information on gender, race, ethnicity, and age. Although these data are several years old, they offer the best available demographic information. Tables P12A to P12I were utilized to calculate the number of juveniles, age 10 to 17, in each gender and race/ethnicity dyad. Gender categories include male and female. Respondents were asked to self-report their race and were allowed to identify multiple racial groups. Race categories include White only (i.e., White with no other racial group identified), Black only, American Indian and Alaska Native only, Asian only, Native Hawaiian and other Pacific Islander only, some other race only, and two or more races. Hereinafter, these categories are referred to as White, Black, Native, Asian, Pacific, other, and multiracial. Overall, 14 dyads were created for analyses by race. These include White males, White females, Black males, Black females, Native males, Native females, Asian males, Asian females, Pacific males, Pacific females, other males, other females, multiracial males, and multiracial females. Respondents were also asked to self-report their ethnicity. Ethnic categories include Hispanic or Latino (hereinafter Hispanic) and White only non-Hispanic or Latino (hereinafter Caucasian). Four dyads were created for analyses by ethnicity. These include Hispanic males, Hispanic females, Caucasian males, and Caucasian females. The number of individuals in each dyad (age 10 to 17) was computed for each census tract. All census data were then merged with the geographic data.

Juvenile Justice Data

All juvenile data were electronically retrieved from the Juvenile Offender Management Information System (JOMIS) maintained by the Division of Juvenile Justice (DJJ, Department of Health and Social Services, State of Alaska). The population that we included in the juvenile justice data included all referrals in fiscal years 2005 and 2006 to the Division of Juvenile Justice in Fairbanks. This population includes 1,363

referrals. For each of these referrals, we retrieved the juvenile's race, ethnicity, gender, and referral type. Race, ethnicity, and gender were coded following the previously described U.S. Census categorizations. Referral types were categorized into referrals for new crimes and referrals for probation or conduct violations. Referrals for new crimes were further divided into referrals for person crimes, property crimes, and other crimes. Definitions for these divisions follow those found in Alaska State Statutes.

For each referral we also gathered the youth's residential address at the time of the offense. Address histories are collected in JOMIS but they are not directly linked to referrals. It was therefore necessary to determine which address most closely corresponded to the youth's address at the time of referral. To do so, we examined both the most recent address entered into JOMIS prior to the referral and the first address entered into JOMIS after the referral. We considered these to be the two potential addresses for the youth at the time of the referral. Of the 1,363 referrals, 562 (41%) had only one address in JOMIS. Hence, this single address was used as the youth's residential address at the time of referral. For 219 (16%) of the referrals, there was no address entered into JOMIS prior to the referral. We therefore selected the first address entered into JOMIS. For 231 (29%) of the referrals, there was no address entered into JOMIS after the referral. We therefore selected the most recent address entered into JOMIS prior to the referral. For 332 (24%) of the referrals, there were two potential addresses (one before and one after the referral). The address which was entered into JOMIS nearest the date of referral was selected as the address to be used in the tract-level analysis. Finally, 19 referrals (1%) had no corresponding address history in JOMIS.

The population of 1,363 referrals was then limited to include only referrals of youth of known race who resided in the Fairbanks North Star Borough. Of the original 1,363 referrals, 16 (1%) were eliminated because the youth's race was unknown. Nineteen (1%) of the remaining 1,347 referrals were eliminated because no address information was available for the referred youth. From the remaining 1,328 referrals, we eliminated seven (1%) because the youth resided outside of Alaska. We then eliminated 242 (18%) of the remaining 1,321 referrals because the youth resided in Alaska, but outside of the Fairbanks North Star Borough. In the end, this yielded a sample of 1,079 youth who resided inside of the Fairbanks North Star Borough at the time of referral. Of these 1,079 referrals, we were able to successfully geo-code 1,049 (97%) of the addresses. Of the 30 referrals we were unable to successfully geo-code, three had no specific address (e.g., an address of "Fairbanks") and 27 did not match any known residential address. Thus, our final sample includes 1,049 referrals of youth who resided inside of the Fairbanks North Star Borough and were referred to DJJ in Fairbanks during fiscal years 2005 and 2006 for a new delinquent offense or a conduct or probation violation.

Geo-coded residential locations were then joined to the geographic and census data. Each census tract was given the sum of the numeric attributes of the geo-coded residential locations that fell within its polygon. This provided the total number of youth referred as well as the number of youth referred in each race/ethnicity and gender dyad in each census tract. Separate totals were calculated for the total sample, the sample referred for person crimes, the sample referred for property crimes, the sample referred for other crimes, and the sample referred for conduct and probation violations.

Analysis

This report utilizes five separate measures to examine disproportionate minority contact: volumes of referral, rates of referral, relative rate indices, Empirical Bayes rates, and relative Empirical Bayes rate indices. We now briefly explain each of these five measures. The volume of referral is simply the number of referrals to DJJ. It is an important measure because it identifies a type of referral that is common enough to be an important source of disproportionate minority contact. When volumes are standardized by the size of the at-risk population, they become rates. Rates are important measures because they take into account differences in the size of the at-risk populations. In the disproportionate minority contact literature, we compare the rates of referral for minority youth to the rates of referral for White or Caucasian youth. One way to compare these rates is to calculate relative rate indices (RRI). Relative rate indices are important measures because they allow us to compare rates of referral across groups. The primary determinant of disproportionate minority contact is this relative rate index. This statistic is the rate of minority youths referred to DJJ per 100 minority youths in the population relative to the rate of White youths referred to DJJ per 100 White youths in the population. It is simply a ratio of two rates. Mathematically, the relative rate index is calculated as:

$$RRI = \frac{(\#\,\text{Minority Youths Referred} / \#\,\text{Minority Youths in the Population}) \times 100}{(\#\,\text{White Youths Referred} / \#\,\text{White Youths in the Population}) \times 100}.$$

Substantively, a relative rate index of 1.00 indicates that the rate of referral for minority youth is exactly the same as the rate of referral for White youth. More technically, a relative rate index of 1.00 indicates that the rate of minority youths referred to DJJ per 100 minority youths is exactly the same as the rate of White youths referred to DJJ per 100 White youths. A relative rate index of 1.00 indicates that minority contact is not disproportionate relative to White contact.

A relative rate index greater than 1.00 indicates that the rate of referral is greater for minority youths than for White youths. More technically, a relative rate index greater than 1.00 indicates that the rate of minority youths referred to DJJ per 100 minority youths is greater than the rate of White youths referred to DJJ per 100 White youths. A relative rate index greater than 1.00 indicates that minority contact is disproportionately high relative to White contact. More precisely, the relative rate index, for any given value of '*RRI*' greater than 1.00, can be interpreted by saying that "the rate of youths referred to DJJ per 100 youth is '*RRI*' times greater for minority youth than for White youth." For example, if RRI=3 for Black youth, one could then conclude that the rate of referral to DJJ is three times greater for Black youth than for White youth.

A relative rate index less than 1.00 indicates that the rate of referral is lower for minority youths than for White youths. More technically, a relative rate index less than 1.00 indicates that the rate of minority youths referred to DJJ per 100 minority youths is less than the rate of White youths referred to DJJ per 1,000 White youths. A relative rate index less than 1.00 indicates that minority contact is disproportionately low relative to White contact. More precisely, the relative rate index, for any given value of '*RRI*' less than 1.00, can be interpreted by saying that "the rate of youths referred to DJJ per 100 youths is (1/'*RRI*') times smaller for minority youths than for White youths." For

example, if RRI=0.5 for Black youth, one could then conclude that the rate of referral to DJJ is two times smaller for Black youth than for White youth (note that 1/0.5 = 2).

The statistical significance of each relative rate index was calculated using a *Z*-statistic for testing the statistical significance of the difference between two proportions from independent samples, using a two-tailed significance level of 0.05 (see Appendix A for additional details). Only if the difference between two proportions is significant may we conclude that there exists a true, meaningful difference between the rates of referral for the two populations. Alternatively, if the significance test yields an insignificant finding, we do not have sufficient evidence to conclude that the observed difference between the two samples is real. Instead, it may be attributable to sample idiosyncrasies or chance (i.e., the "real" rate of referral in the populations may not be different).

When one of the samples being tested is small (there is disagreement about what "small" means, but for our purposes "small" was defined as a sample of fewer than 30), the Z-test described is no longer appropriate. In this rare instance, we used a Fisher's Exact Test to assess the statistical significance of the observed difference in the rates of referral. The details of this test are discussed in Appendix B. The interpretation of the results is identical to that of the previously discussed Z-test.

Rates and relative rate indices for all minority groups are utilized to examine disproportionate minority contact throughout the Fairbanks North Star Borough. Analyses are also conducted for each racial and ethnic group, by gender, by referral type, and by both gender and referral type. However, rates and relative rates were abandoned for the tract-level analysis.

As aforementioned, a relative rate index is simply the ratio of two raw rates. A well-known problem with raw rates is that their variances are unstable. The precision of rate estimates varies by the size of the population at risk in each geographical unit. Geographical units with small populations at risk produce imprecise raw rates. In the disproportionate minority contact literature, this problem has been traditionally solved by not analyzing geographical areas where the population at risk represents less than 1% of the total population within those geographical areas. This is totally unsatisfying as these are precisely the areas that may produce the highest levels of disproportionate minority contact. To resolve this problem, we examine relative empirical Bayes (EB) rate indices that are ratios of two empirical Bayes rates. Given that this relative EB rate index has never been used in disproportionate minority contact research, a bit of justification and explanation is provided in Appendix C. The primary advantage of relative EB rate indices is that we gain the ability to examine disproportionate minority contact in geographical areas that have small populations at risk. The primary limitation to relative EB rate indices is that they are far less interpretable than relative rate indices. Empirical Bayes rates are best thought of as measures of the underlying risk of referral in a tract. Rather than measuring the rate of referral, they measure the risk of referral. Relative EB rates than measure the differences in the risk of referral rather than differences in the rates of referral.

Results are organized into three sections. The first section provides a brief overview of the racial, ethnic, and gender composition of youth referred to DJJ for new crimes and probation or conduct violations. This first section defines the volume of referrals to DJJ. The second section then examines whether minority youth are disproportionately referred to DJJ. Stated differently, this second section compares the

rate of minority youth referrals to the rate of White or Caucasian youth referrals. Analyses are conducted for each racial and ethnic group, by gender group, and by referral type (person crime, property crime, other criminal offense, and probation or conduct violation). The third section examines the risk of referral for minority youth by census tract. Analyses are conducted for all minority youth, Native youth, and Black youth. Results are disaggregated by gender and by type of referral.

Results

Racial, Ethnic, and Gender Composition of Referred Youth

All following analyses use individual referrals as the unit of analysis. Again, this includes 1,049 referrals to the Fairbanks DJJ office during FY05/06. It is important to note that a single youth could potentially be referred several times during this period. Indeed, the sample of 1,049 referrals is actually composed of only 657 distinct or unduplicated youth. Of these 657 youth, the majority (70%) were referred only once. The remaining 199 youth (30%) accounted for 591 (56%) of the referrals.

Table 1. Race and Gender of Referred Youth

Column percentages

Demographics	N	%
Gender		
Male	767	73.1 %
Female	282	26.9
Total	**1049**	
Race		
White	554	52.8
Black	118	11.2
Native	319	30.4
Asian	3	0.3
Pacific	2	0.2
Other minority	12	1.1
Multiracial	41	3.9
Total	**1049**	
Race by Gender		
White males	401	52.3
Black males	99	12.9
Native males	225	29.3
Asian males	2	0.3
Pacific males	2	0.3
Other minority males	8	1.0
Multiracial males	30	3.9
Total	**767**	
White females	153	54.3
Black females	19	6.7
Native females	94	33.3
Asian females	1	0.4
Pacific females	0	0.0
Other minority females	4	1.4
Multiracial females	11	3.9
Total	**282**	

Source of data: *Division of Juvenile Justice (FY05 /06)*

Of the 1,049 referrals, 767 (73%) were for males while 282 (27%) were for females. The majority of the referrals (554 or 53%) were for White youth while 118

(11%) were for Black youth, 319 (30%) were for Native youth, three (<1%) were for Asian youth, two (<1%) were for Pacific youth, 12 (1%) were for other minority youth, and 41 (4%) were for multiracial youth. In addition, 15 of the referrals were for Hispanic youth. Additional details by gender are shown in Table 1.

Overall, there were 239 referrals that included at least one charge for a person crime, 473 referrals that included at least one charge for a property crime, 313 referrals that included at least one charge for another crime, and 175 referrals that included at least one conduct or probation violation. Because these are not mutually exclusive categories (i.e., a referral may include both a charge for a person crime and a charge for a property crime), these samples are not independent (and the sum of cases therefore exceeds the total number of referrals).

We now examine the race of referred youth further by referral type (Table 2) and by gender and referral type (Table 3). We then examine the ethnicity of referred youth further by referral type (Table 4) and by gender and referral type (Table 5).

Table 2. Race of Referred Youth by Referral Type

Column percentages

	Person Crime			Property Crime		
Race	N	%	% of minority	N	%	% of minority
White	117	49.0 %	--.-	266	56.2 %	--.-
Black	32	13.4	26.2 %	49	10.4	23.7 %
Native	72	30.1	59.0	135	28.5	65.2
Asian	0	0.0	0.0	2	0.4	1.0
Pacific	0	0.0	0.0	1	0.2	0.5
Other minority	7	2.9	5.7	1	0.2	0.5
Multiracial	11	4.6	9.0	19	4.0	9.2
Total	**239**			**473**		

	Other Crime			Probation		
Race	N	%	% of minority	N	%	% of minority
White	180	57.5 %	--.-	68	38.9 %	--.-
Black	28	8.9	23.0 %	20	11.4	9.7 %
Native	87	27.8	71.3	82	46.9	39.6
Asian	1	0.3	0.8	0	0.0	0.0
Pacific	1	0.3	0.8	0	0.0	0.0
Other minority	6	1.9	4.9	0	0.0	0.0
Multiracial	10	3.2	8.2	5	2.9	2.4
Total	**313**			**175**		

Source of data: *Division of Juvenile Justice (FY05/06)*

As stated earlier, the majority of referrals were for White youth. This was also true for all crime types (person, property, and other). More specifically, 49% of the referrals for person crimes were for White youth, 56% of the referrals for property crimes were for White youth, and 58% of the referrals for other crimes were for White youth. However, White youth were not the most common youth referred for probation or conduct violations. Native youth were the most common youth referred for probation or

conduct violations. Indeed, 47% of the referrals for probation or conduct violations were for Native youth while 39% were for White youth.

If we only focus on the number of minority youth referred to DJJ (% of minority statistics), Native youth represented 59% of the non-White referrals for person crimes, 65% of the non-White referrals for property crimes, 65% of the non-White referrals for other crimes, and 77% of the non-White referrals for probation or conduct violations. Black youth were the only other group that consistently and substantially contributed to the volume of referrals. More specifically, Black youth constituted 13% of the referrals for person crimes, 10% of the referrals for property crimes, 9% of the referrals for other criminal offenses, and 11% of the referrals for conduct or probation violations. Combined, the other four racial groups (i.e., Asian, Pacific, other, and multiracial) never accounted for more than 8% of the referrals for any offense type. Youths from these four racial groups represented 8% of the referrals for person crimes, 5% of the referrals for property crimes, 6% of the referrals for other criminal offenses, and 3% of the referrals for conduct or probation violations.

In Table 3, we further decompose these volume statistics by gender. Not surprisingly, males continue to outnumber females in almost all types of referrals, for almost all racial groups.

Table 3. Race of Referred Youth by Gender and Referral Type

Column percentages

	Person Crime		Property Crime		Other Crime		Probation	
Race by Gender	N	%	N	%	N	%	N	%
Male								
White	77	49.4 %	197	55.3 %	140	58.6	50	36.5
Black	25	16.0	41	11.5	25	10.5	18	13.1
Native	45	28.8	100	28.1	57	23.8	66	48.2
Asian	0	0.0	1	0.3	1	0.4	0	0.0
Pacific	0	0.0	1	0.3	1	0.4	0	0.0
Other minority	4	2.6	0	0.0	6	2.5	0	0.0
Multiracial	5	3.2	16	4.5	9	3.8	3	2.2
Total	**156**		**356**		**239**		**137**	
Female								
White	40	48.2	69	59.0	40	54.1	18	47.4
Black	7	8.4	8	6.8	3	4.1	2	5.3
Native	27	32.5	35	29.9	30	40.5	16	42.1
Asian	0	0.0	1	0.9	0	0.0	0	0.0
Pacific	0	0.0	0	0.0	0	0.0	0	0.0
Other minority	3	3.6	1	0.9	0	0.0	0	0.0
Multiracial	6	7.2	3	2.6	1	1.4	2	5.3
Total	**83**		**117**		**74**		**38**	

Source of data: *Division of Juvenile Justice (FY05 /06)*

White males represented the majority of male youth referred to DJJ for person crimes (49% of referrals for males accused of person crimes were for White males). Similarly, White males represented the majority of male youth referred to DJJ for property crimes and for other crimes. But again, White males did not represent the

majority of male youth referred to DJJ for probation or conduct violations. Native males represented 48% of the referrals for probation or conduct violations while White males represented 36%. Native males also accounted for the largest proportion of minority males referred for every referral type. Native males represented 57% of the minority males referred for person crimes, 63% of the minority males referred for property crimes, 58% of the minority males referred for other criminal offenses, and 76% of the minority males referred for probation or conduct violations (results not shown).

This same pattern was found for female youth, with one exception. Similar to males, White females represented the majority of female youth referred to DJJ for person crimes (48%), for property crimes (59%), and for other criminal offenses (54%). However, contrary to males, White females also represented the plurality (47%) of females referred to DJJ for conduct or probation violations. Similar to Native males, Native females represented the vast majority of the minority referrals for all referral types. Native females represented 63% of the minority females referred for person crimes, 73% of the minority females referred for property crimes, 88% of the minority females referred for other criminal offenses, and 80% of the minority females referred for conduct or probation violations (results not shown).

While hypothesis testing across referral type (e.g., between person and property crime) is inappropriate due to the dependence in the samples, hypothesis testing can be conducted within referral types, across gender groups (e.g., White females referred for a person crime versus White males referred for a person crime). These hypothesis tests, for example, determine if the proportion of Native youth in the male sample is equivalent to the proportion of Native youth in the female sample. All hypothesis tests across gender groups were carried out, but no significant differences were found. Stated differently, race distributions do not vary by gender group (within each referral type). In other words, the proportion of Native youth in the male sample did not differ from the proportion of Native youth in the female sample. This was true for every racial group and within each referral type.

To summarize the information about volume by race, White and Native youth consistently accounted for the vast majority of referrals to DJJ across all referral types, and across gender groups. When considered together, Native and White youth were 79% of all referrals for person crimes, 85% of all referrals for property crimes, 85% of all referrals for other criminal offenses, and 86% of all referrals for conduct or probation violations. Native youth, both male and female, consistently accounted for the largest proportion of minority youth referred to DJJ across all referral types and across gender groups. Finally, while males greatly outnumbered females in referrals to DJJ, race distributions did not vary by gender, within each referral type.

We now examine the ethnic composition of the sample. Of the 1,049 referrals in the sample, 15 (1%) were referrals of Hispanic youth (for 10 unduplicated youth). Clearly, the volume of referral for Hispanic youth to DJJ (in Fairbanks) is quite low. In analyses exploring the effect of ethnicity, Caucasians are the reference group against which Hispanics are compared. The Caucasian group consists only of White alone, non-Hispanic/Latino youth. Non-Hispanic/Latino minority youth are excluded from analyses by ethnicity. Table 4 shows the ethnicity of referred youth in our sample by referral type.

Table 4. Ethnicity of Referred Youth by Referral Type

Column percentages

	Person Crime		Property Crime		Other Crime		Probation	
Ethnicity	N	%	N	%	N	%	N	%
Caucasian	114	94.2 %	265	98.9 %	177	97.8 %	66	97.1 %
Hispanic	7	5.8	3	1.1	4	2.2	2	2.9
Total	**121**		**268**		**181**		**68**	

Source of data: *Division of Juvenile Justice (FY05/06)*

Of this restricted sample, Hispanic youth accounted for 6% of youth referred for person crimes, 1% of youth referred for property crimes, 2% of youth referred for other criminal offenses, and 3% of youth referred for conduct or probation violations.

Because of the low number of Hispanic youth referred to DJJ, further analyzing the number of youth referred by ethnicity becomes difficult. In Table 5, we examine the ethnicity of referred youth by referral type and gender. No male Hispanic youth were referred to DJJ for person crimes or property crimes. Male Hispanic youth also constituted a very small proportion of male youth referred for other criminal offenses (2%) and conduct or probation violations (4%). Female Hispanic youth accounted for 16% of female youth referred for person crimes, 4% of female youth referred for property crimes, 3% of female youth referred for other criminal offenses, and 0% of female youth referred for conduct or probation violations. Again, these statistics are based on a restricted sample that only includes Hispanic and Caucasian youth.

Table 5. Ethnicity of Referred Youth by Gender and Referral Type

Column percentages

	Person Crime		Property Crime		Other Crime		Probation	
Ethnicity by Gender	N	%	N	%	N	%	N	%
Male								
Caucasian	77	100.0 %	197	100.0 %	138	97.9	48	96.0
Hispanic	0	0.0	0	0.0	3	2.1	2	4.0
Total	**77**		**197**		**141**		**50**	
Female								
Caucasian	37	84.1	68	95.8	39	97.5	18	100.0
Hispanic	7	15.9	3	4.2	1	2.5	0	0.0
Total	**44**		**71**		**40**		**18**	

Source of data: *Division of Juvenile Justice (FY05/06)*

As with the analyses based on race, we can perform hypothesis tests to examine if Hispanic males and Hispanic females differ in their respective representation in each referral type sample. Here again, however, due to dependencies in the samples, hypothesis testing across referral types was not conducted. These tests revealed that Hispanics constituted a significantly larger proportion of referrals among females than among males. This was true for referrals for person and property crimes. Again, there were no Hispanic males in the sample that were referred for either person or property crimes.

Disproportionate Minority Contact in the Fairbanks North Star Borough

In the previous section, we analyzed the volume of referrals to DJJ by race and ethnicity, by referral type, and by gender. In this section, we begin to examine disproportionate minority contact through the use of rates and relative rate indices. We first explore rates of referral by race and calculate relative rate indices by race (Table 6). This process is then repeated by gender (Table 7), by referral type (Table 8), and by gender and referral type (Table 9). We conduct similar analyses by ethnicity (Table 10), by ethnicity and gender (Table 11), by ethnicity and referral type (Table 12), and by ethnicity, gender, and referral type (Table 13).

Table 6. Relative Rate Indices by Race

	Youth Referred		Youth in Population (Age 10 to 17)		Rate of Referrals per 100 Youth	Relative Rate Index[1]
Race	N	%	N	%		
White	554	52.8 %	8224	73.5 %	6.7	- - -
Black	118	11.2	668	6.0	17.7	**2.62**
Native	319	30.4	955	8.5	33.4	**4.96**
Asian	3	0.3	190	1.7	1.6	**0.23**
Pacific	2	0.2	37	0.3	5.4	0.80
Other minority	12	1.1	178	1.6	6.7	1.00
Multiracial	41	3.9	939	8.4	4.4	**0.65**
Total	**1049**		**11191**		**93.7**	

[1] Indices in bold are significantly different than reference category ($\alpha = 0.05$). Reference category is White.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Table 6 shows the volume of referrals for each racial group (from Table 2), the number of at-risk youth in the population for each racial group, each racial group's rate of referral per 100 youth, and each racial group's relative rate index. The reader is cautioned that the rates of referrals were calculated on two years of data. To obtain annual rates of referral, the rates in Table 6 should be divided by two. This has no effect on the calculation of relative rate indices.

Overall, minority youth were significantly more likely than their White counterparts to be referred to DJJ (RRI = 2.52, result not shown). However, only Black youth and Native youth were referred at a significantly higher rate than White youth (RRI = 2.62 and 4.96, respectively). Black youth were 2.62 times more likely than White youth to be referred to DJJ, and Native youth were 4.96 times more likely than White youth to be referred to DJJ. Asian youth and multiracial youth were referred at a significantly lower rate than White youth (RRI = 0.23 and 0.65, respectively). This indicates that Asian youth were 4.35 times less likely than White youth to be referred to DJJ, while multiracial youth were 1.53 times less likely than White youth to be referred to DJJ. Finally, relative to White youth, there was no meaningful disparity in the referral rate of Pacific or other minority youth.

We now further examine these results by gender (see Table 7). Overall, male minority youth were significantly more likely to be referred than White male youth (RRI

= 2.70, result not shown). When each racial group was considered separately, the results were the same as before (see Table 6). More precisely, Black male youth and Native male youth were significantly more likely to be referred than White male youth. Black male youth were 3.23 times more likely than White male youth to be referred to DJJ and Native male youth were 5.39 times more likely than White male youth to be referred to DJJ. We again find that Asian male youth and multiracial male youth were significantly less likely than their White male counterparts to be referred to DJJ. Asian males were 4.35 times less likely to be referred than White males and multiracial males were 1.49 time less likely to be referred than White males.

Table 7. Relative Rate Indices by Race and Gender

	Youth Referred		Youth in Population (Age 10 to 17)		Rate of Referrals per 100 Youth	Relative Rate Index[1]
Race by Gender	N	%	N	%		
Male						
White	401	52.3 %	4335	74.7 %	9.3	- - -
Black	99	12.9	331	5.7	29.9	**3.23**
Native	225	29.3	451	7.8	49.9	**5.39**
Asian	2	0.3	95	1.6	2.1	**0.23**
Pacific	2	0.3	18	0.3	11.1	1.20
Other minority	8	1.0	90	1.6	8.9	0.96
Multiracial	30	3.9	481	8.3	6.2	**0.67**
Total	**767**		**5801**			
Female						
White	153	54.3 %	3889	72.2 %	3.9	- - -
Black	19	6.7	337	6.3	5.6	1.43
Native	94	33.3	504	9.4	18.7	**4.74**
Asian	1	0.4	95	1.8	1.1	0.27
Pacific	0	0.0	19	0.4	0.0	0.00
Other minority	4	1.4	88	1.6	4.5	1.16
Multiracial	11	3.9	458	8.5	2.4	0.61
Total	**282**		**5390**			

[1] Indices in bold are significantly different than the reference category ($\alpha = 0.05$). Reference category is White males for males and White females for females.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Overall, minority females were significantly more likely than white females to be referred (RRI = 2.18, result not shown). However, this was only true for Native females. More precisely, Native females were 4.74 times more likely to be referred to DJJ than White females. Other minority females (Black, Asian, Pacific, other minority, and multiracial) were neither more nor less likely to be referred to DJJ than White females.

In Table 8, we examine disproportionate minority contact by race and referral type. Overall, minority youth were significantly more likely than White youth to be referred for person crimes (RRI = 2.89), property crimes (RRI = 2.16), other criminal offenses (RRI = 2.05), and conduct or probation violations (RRI = 4.36). Stated differently, minority youth were more likely than White youth to be referred to DJJ for every referral type.

Table 8. Relative Rate Indices by Race and Referral Type

Race by Referral Type	Youth Referred N	Youth Referred %	Youth in Population (Age 10 to 17) N	Youth in Population (Age 10 to 17) %	Rate of Referrals per 100 Youth	Relative Rate Index[1]
Person Crime						
White	117	49.0 %	8224	73.5 %	1.4	- - -
Black	32	13.4	668	6.0	4.8	**3.37**
Native	72	30.1	955	8.5	7.5	**5.30**
Asian	0	0.0	190	1.7	0.0	0.00
Pacific	0	0.0	37	0.3	0.0	0.00
Other minority	7	2.9	178	1.6	3.9	**2.76**
Multiracial	11	4.6	939	8.4	1.2	0.82
Total	**239**		**11191**			
Property Crime						
White	266	56.2 %	8224	73.5 %	3.2	- - -
Black	49	10.4	668	6.0	7.3	**2.27**
Native	135	28.5	955	8.5	14.1	**4.37**
Asian	2	0.4	190	1.7	1.1	0.33
Pacific	1	0.2	37	0.3	2.7	0.84
Other minority	1	0.2	178	1.6	0.6	**0.17**
Multiracial	19	4.0	939	8.4	2.0	**0.63**
Total	**473**		**11191**			
Other Crime						
White	180	57.5 %	8224	73.5 %	2.2	- - -
Black	28	8.9	668	6.0	4.2	**1.92**
Native	87	27.8	955	8.5	9.1	**4.16**
Asian	1	0.3	190	1.7	0.5	0.24
Pacific	1	0.3	37	0.3	2.7	1.23
Other minority	6	1.9	178	1.6	3.4	1.54
Multiracial	10	3.2	939	8.4	1.1	**0.49**
Total	**313**		**11191**			
Probation						
White	68	38.9 %	8224	73.5 %	0.8	- - -
Black	20	11.4	668	6.0	3.0	**3.62**
Native	82	46.9	955	8.5	8.6	**10.38**
Asian	0	0.0	190	1.7	0.0	0.00
Pacific	0	0.0	37	0.3	0.0	0.00
Other minority	0	0.0	178	1.6	0.0	0.00
Multiracial	5	2.9	939	8.4	0.5	0.64
Total	**175**		**11191**			

[1] Indices in bold are significantly different than the reference category ($\alpha = 0.05$). Reference category is White.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Across all referral types, Black youth and Native youth were significantly more likely to be referred to DJJ. Black youth were 3.37 times more likely than White youth to be referred for person crimes, 2.27 more likely to be referred for property crimes, 1.92 time more likely to be referred for other criminal offenses, and 3.62 times more likely to

be referred for a conduct or probation violation. The referral rate for Native youth was even more disparate than that of Black youth. Native youth were 5.30 times more likely than White youth to be referred for person crimes, 4.37 times more likely to be referred for property crimes, 4.16 times more likely to be referred for other criminal offenses, and 10.38 times more likely to be referred for a conduct or probation violation.

While Black and Native youth were disproportionately referred to DJJ across all referral types, the same was not true for other racial minorities. Of the remaining 16 RRIs in Table 8, only four reached statistical significance. Of these four, only one indicates a disproportionately high rate of referral. Other minority youth were significantly more likely than white youth to be referred for person crimes (RRI = 2.76). The three remaining significant results correspond to rates of referral for minority youth which were significantly lower than for White youth. Other minority youth and multiracial youth were less likely than White youth to be referred for property crimes (RRI = 0.17 and 0.63, respectively) and multiracial youth were less likely to be referred for other criminal offenses (RRI = 0.49).

In Table 9 (on pages 29 and 30), we examine RRIs by race, gender, and referral type. Similar to earlier findings, minority youth, both males and females, were significantly more likely to be referred across all referral types. More specifically, minority males were more likely than White males to be referred for person crimes (RRI = 3.03), property crimes (RRI = 2.39), other criminal offenses (RRI = 2.09), and conduct or probation violations (RRI = 5.15, results not shown). Likewise, minority females were significantly more likely to be referred than White females for person crimes (RRI=2.79), property crimes (RRI=1.80), other criminal offenses (RRI=2.20), and conduct or probation violations (RRI=2.88, results not shown). Of the 48 RRIs in Table 9, 14 (29%) reached statistical significance.

Across all referral types and for both males and females, Native youth were more likely than White youth to be referred to DJJ. Native males were 5.62 times more likely than White males to be referred for person crimes, 4.88 times more likely to be referred for property crimes, 3.91 times more likely to be referred for other criminal offenses, and 12.69 times more likely to be referred for a conduct or probation violation. Similarly, Native females were more likely than White females to be referred for all referral types. Native females were 5.21 times more likely than White females to be referred for person crimes, 3.91 times more likely to be referred for property crimes, 5.79 times more likely to be referred for other criminal offenses, and 6.86 times more likely to be referred for a conduct or probation violation.

Of the remaining 6 significant findings in Table 9, four concerned Black males. Black males were more likely than White males to be referred for all referral types (RRI = 4.25 for person crimes, 2.73 for property crimes, 2.34 for other criminal offenses, and 4.71 for conduct or probation violations). Findings also indicate that other minority females were more likely to be referred for person crimes (RRI = 3.31) and that other minority males were less likely to be referred for property crimes (RRI = 0.00).

Table 9. Relative Rate Indices by Race, Referral Type, and Gender

Race by Referral Type and Gender	Youth Referred N	Youth Referred %	Youth in Population (Age 10 to 17) N	Youth in Population (Age 10 to 17) %	Rate of Referrals per 100 Youth	Relative Rate Index[1]
Person Crime, Male						
White	77	49.4 %	4335	74.7 %	1.8	- - -
Black	25	16.0	331	5.7	7.6	**4.25**
Native	45	28.8	451	7.8	10.0	**5.62**
Asian	0	0.0	95	1.6	0.0	0.00
Pacific	0	0.0	18	0.3	0.0	0.00
Other minority	4	2.6	90	1.6	4.4	2.50
Multiracial	5	3.2	481	8.3	1.0	0.59
Total	**156**		**5801**			
Person Crime, Female						
White	40	48.2 %	3889	72.2 %	1.0	- - -
Black	7	8.4	337	6.3	2.1	2.02
Native	27	32.5	504	9.4	5.4	**5.21**
Asian	0	0.0	95	1.8	0.0	0.00
Pacific	0	0.0	19	0.4	0.0	0.00
Other minority	3	3.6	88	1.6	3.4	**3.31**
Multiracial	6	7.2	458	8.5	1.3	1.27
Total	**83**		**5390**			
Property Crime, Male						
White	197	55.3 %	4335	74.7 %	4.5	- - -
Black	41	11.5	331	5.7	12.4	**2.73**
Native	100	28.1	451	7.8	22.2	**4.88**
Asian	1	0.3	95	1.6	1.1	0.23
Pacific	1	0.3	18	0.3	5.6	1.22
Other minority	0	0.0	90	1.6	0.0	**0.00**
Multiracial	16	4.5	481	8.3	3.3	0.73
Total	**356**		**5801**			
Property Crime, Female						
White	69	59.0 %	3889	72.2 %	1.8	- - -
Black	8	6.8	337	6.3	2.4	1.34
Native	35	29.9	504	9.4	6.9	**3.91**
Asian	1	0.9	95	1.8	1.1	0.59
Pacific	0	0.0	19	0.4	0.0	0.00
Other minority	1	0.9	88	1.6	1.1	0.64
Multiracial	3	2.6	458	8.5	0.7	0.37
Total	**117**		**5390**			

Table 9 (Continued). Relative Rate Indices by Race, Referral Type, and Gender

Race by Referral Type and Gender	Youth Referred N	Youth Referred %	Youth in Population (Age 10 to 17) N	Youth in Population (Age 10 to 17) %	Rate of Referrals per 100 Youth	Relative Rate Index[1]
Other Crime, Male						
White	140	58.6 %	4335	74.7 %	3.2	- - -
Black	25	10.5	331	5.7	7.6	**2.34**
Native	57	23.8	451	7.8	12.6	**3.91**
Asian	1	0.4	95	1.6	1.1	0.33
Pacific	1	0.4	18	0.3	5.6	1.72
Other minority	6	2.5	90	1.6	6.7	2.06
Multiracial	9	3.8	481	8.3	1.9	0.58
Total	**239**		**5801**			
Other Crime, Female						
White	40	54.1 %	3889	72.2 %	1.0	- - -
Black	3	4.1	337	6.3	0.9	0.87
Native	30	40.5	504	9.4	6.0	**5.79**
Asian	0	0.0	95	1.8	0.0	0.00
Pacific	0	0.0	19	0.4	0.0	0.00
Other minority	0	0.0	88	1.6	0.0	0.00
Multiracial	1	1.4	458	8.5	0.2	0.21
Total	**74**		**5390**			
Probation, Male						
White	50	36.5 %	4335	74.7	1.2	- - -
Black	18	13.1	331	5.7	5.4	**4.71**
Native	66	48.2	451	7.8	14.6	**12.69**
Asian	0	0.0	95	1.6	0.0	0.00
Pacific	0	0.0	18	0.3	0.0	0.00
Other minority	0	0.0	90	1.6	0.0	0.00
Multiracial	3	2.2	481	8.3	0.6	0.54
Total	**137**		**5801**			
Probation, Female						
White	18	47.4 %	3889	72.2	0.5	- - -
Black	2	5.3	337	6.3	0.6	1.28
Native	16	42.1	504	9.4	3.2	**6.86**
Asian	0	0.0	95	1.8	0.0	0.00
Pacific	0	0.0	19	0.4	0.0	0.00
Other minority	0	0.0	88	1.6	0.0	0.00
Multiracial	2	5.3	458	8.5	0.4	0.94
Total	**38**		**5390**			

[1] Indices in bold are significantly different than the reference category ($\alpha = 0.05$). Reference category is White males for males and White females for females.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

To succinctly summarize, results were very consistent. Disproportionate minority contact was most prevalent for Native males, Native females, and Black males. High levels of disproportionate minority contact were found for these three gender / race dyads, for all types of referrals (i.e., person crimes, property crimes, other crimes, and probation or conduct violations). The highest level of disproportionate minority contact was found for Native males referred for probation or conduct violations (RRI = 12.69). The second highest level of disproportionate minority contact was found for Native females referred for probation or conduct violations (RRI = 6.86). Stated differently, Native males were 12.69 times more likely to be referred to DJJ for probation or conduct violations than White males and Native females were 6.86 times more likely to be referred to DJJ for probation or conduct violations than White females.

We now examine disproportionate minority contact by ethnicity (Hispanic versus Caucasian youth; see Table 10). Results are then broken down by gender (Table 11), by referral type (Table 12), and by both gender and referral type (Table 13). As previously mentioned, only 15 referrals were for Hispanic youth. The following results should be interpreted cautiously. Table 10 shows the rate of referral for Hispanic youth as well as the RRI for Hispanic youth. Findings indicate that Hispanic youth were 2.17 times less likely than Caucasian youth to be referred to DJJ.

Table 10. Relative Rate Indices by Ethnicity

	Youth Referred		Youth in Population (Age 10 to 17)		Rate of Referrals per 100 Youth	Relative Rate Index[1]
Ethnicity	N	%	N	%		
Caucasian	545	97.3 %	8017	94.4 %	6.8	- - -
Hispanic	15	2.7	477	5.6	3.1	**0.46**
Total	**560**		**8494**			

[1] All indices are significantly different than reference category ($\alpha = 0.05$). Reference category is Caucasian.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Table 11. Relative Rate Indices by Ethnicity and Gender

	Youth Referred		Youth in Population (Age 10 to 17)		Rate of Referrals per 100 Youth	Relative Rate Index[1]
Ethnicity by Gender	N	%	N	%		
Male						
Caucasian	397	98.8 %	4234	94.8 %	9.4	- - -
Hispanic	5	1.2	234	5.2	2.1	**0.23**
Total	**402**		**4468**			
Female						
Caucasian	148	93.7 %	3783	94.0 %	3.9	- - -
Hispanic	10	6.3	243	6.0	4.1	1.05
Total	**158**		**4026**			

[1] Indices in bold are significantly different than the reference category ($\alpha = 0.05$). Reference category is Caucasian males for males and Caucasian females for females.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

When this sample was decomposed by gender (Table 11), we found that Hispanic males were significantly less likely than Caucasian male to be referred to DJJ (RRI = 0.23; recall that no Hispanic males were referred for person or property crimes). More precisely, Hispanic males were 4.35 times less likely to be referred than Caucasian males. However, there was no meaningful difference in the rate of referral between Hispanic females and Caucasian females.

Rates of referral (and relative rate indices) by ethnicity and referral type are shown in Table 12. Findings indicate that Hispanic youth were significantly less likely than Caucasian youth to be referred for property crimes (RRI = 0.19) and other criminal offenses (RRI = 0.38). More precisely, Hispanic youth were 5.26 times less likely than Caucasian youth to be referred for property crimes and 2.63 times less likely than Caucasian youth to be referred for other criminal offenses.

Table 12. Relative Rate Indices by Ethnicity and Referral Type

	Youth Referred		Youth in Population (Age 10 to 17)		Rate of Referrals per 100 Youth	Relative Rate Index[1]
Ethnicity by Referral Type	N	%	N	%		
Person Crime						
Caucasian	114	94.2 %	8017	94.4 %	1.4	- - -
Hispanic	7	5.8	477	5.6	1.5	1.03
Total	**121**		**8494**			
Property Crime						
Caucasian	265	98.9 %	8017	94.4 %	3.3	- - -
Hispanic	3	1.1	477	5.6	0.6	**0.19**
Total	**268**		**8494**			
Other Crime						
Caucasian	177	97.8 %	8017	94.4 %	2.2	- - -
Hispanic	4	2.2	477	5.6	0.8	**0.38**
Total	**181**		**8494**			
Probation						
Caucasian	66	97.1 %	8017	94.4 %	0.8	- - -
Hispanic	2	2.9	477	5.6	0.4	0.51
Total	**68**		**8494**			

[1] Indices in bold are significantly different than the reference category ($\alpha = 0.05$). Reference category is Caucasian.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Finally, we examine rates of referral (and relative rate indices) by ethnicity, gender, and referral type in Table 13. Of the 8 relative rate indices presented in Table 13, three reach statistical significance. Hispanic males were significantly less likely than Caucasian males to be referred for person crimes and for property crimes (both RRIs = 0.00). Again, no Hispanic males were referred for person crimes or for property crimes. However, Hispanic females were 2.95 times more like than Caucasian females to be referred for person crimes (RRI = 2.95). No other observed differences in the rate of referral between Hispanic and Caucasian youth attained statistical significance.

Table 13. Relative Rate Indices by Ethnicity, Referral Type, and Gender

Ethnicity by Referral Type and Gender	Youth Referred N	Youth Referred %	Youth in Population (Age 10 to 17) N	Youth in Population (Age 10 to 17) %	Rate of Referrals per 100 Youth	Relative Rate Index[1]
Person Crime, Male						
Caucasian	77	100.0 %	4234	94.8 %	1.8	- - -
Hispanic	0	0.0	234	5.2	0.0	**0.00**
Total	**77**		**4468**			
Person Crime, Female						
Caucasian	37	84.1 %	3783	94.0 %	1.0	- - -
Hispanic	7	15.9	243	6.0	2.9	**2.95**
Total	**44**		**4026**			
Property Crime, Male						
Caucasian	197	100.0 %	4234	94.8 %	4.7	- - -
Hispanic	0	0.0	234	5.2	0.0	**0.00**
Total	**197**		**4468**			
Property Crime, Female						
Caucasian	68	95.8 %	3783	94.0 %	1.8	- - -
Hispanic	3	4.2	243	6.0	1.2	0.69
Total	**71**		**4026**			
Other Crime, Male						
Caucasian	138	97.9 %	4234	94.8 %	3.3	- - -
Hispanic	3	2.1	234	5.2	1.3	0.39
Total	**141**		**4468**			
Other Crime, Female						
Caucasian	39	97.5 %	3783	94.0 %	1.0	- - -
Hispanic	1	2.5	243	6.0	0.4	0.40
Total	**40**		**4026**			
Probation, Male						
Caucasian	48	96.0 %	4234	94.8	1.1	- - -
Hispanic	2	4.0	234	5.2	0.9	0.75
Total	**50**		**4468**			
Probation, Female						
Caucasian	18	100.0 %	3783	94.0	0.5	- - -
Hispanic	0	0.0	243	6.0	0.0	0.00
Total	**18**		**4026**			

[1] Indices in bold are significantly different than the reference category ($\alpha = 0.05$). Reference category is Caucasian males for males and Caucasian females for females.

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Overall, it is clear that minority youth were disproportionately referred to DJJ. However, the extent of disproportionate minority contact varied greatly by race (and ethnicity), by gender, and by referral type. In a nutshell, disproportionate minority contact was most prevalent for Native males, Native females, and Black males.

Perhaps the most disconcerting findings thus far concern the disparate rates of referral experienced by Native youth. Native youth experienced disproportionate rates of referral in every analysis heretofore conducted. Disproportionate rates of referral were found in both gender groups, across all four referral types, and in all eight referral type by gender classifications. Moreover, the magnitude of the disproportionate minority contact was quite large, ranging from 3.91 for Native males referred for other criminal offenses to a high of 12.69 for Native males referred for a conduct or probation violation. Stated differently, Native youth in this sample were always at least 3.91 times more likely than their White counterparts to be referred to DJJ. In addition, the three highest levels of disproportionate minority contact observed in this sample were all for Native youth referred for a conduct or probation violation. Native females were 6.86 times more likely than White females to be referred for a conduct or probation violation and Native males were 12.69 times more likely than White males to be referred for a conduct or probation violation. Overall, Native youth were 10.38 times more likely than White youth to be referred for a conduct or probation violation.

Indeed, it is clear that any effort to curb disproportionate minority contact in the Fairbanks North Star Borough must focus on Native youth (both male and female) and on Black male youth. These groups experience significantly higher rates of referral for every type of referral, but most prominently for conduct or probation violations.

Disproportionate Minority Contact by Census Tract

We now begin our examination of the spatial patterns of disproportionate minority contact within the Fairbanks North Star Borough. As noted previously, the volume of referrals to DJJ for Asian, Pacific, other minority, multiracial, and Hispanic youth was very low. Additionally, the relative rates of referral for youths in these racial and ethnic groups were often quite low compared to the relative rates for Native and Black youth. Because of these results, analyses of disproportionate minority contact by census tract focus on three racial categorizations. First, we examine all minority racial groups combined together. We then examine disproportionate minority contact by census tract for Native youth and for Black youth.

The following results are based on relative empirical Bayes (EB) rate indices. It is again important to note that these relative EB rate indices measure differences in the underlying risk of referral between minority and White youth. It is also important to note that high relative EB rate indices do not necessarily indicate that minority youth have a high risk of referral. Instead, a high relative EB rate index simply indicates that minority youth have a higher risk of referral than White youth. High relative EB rates (and high relative rates) do not necessarily correspond to high volumes. It is possible that tracts in which minority youth experience high levels of disproportionate minority contact are also tracts in which the volume of referrals to DJJ is very low. As previously mentioned, adequate policy responses must focus on areas which have both high underlying risk of disproportionate referral *and* substantial volumes of referral. In this section, we focus on relative EB rate indices by census tract (to measure disproportionate minority contact). Empirical Bayes rates of referral by census tract (to measure volume) are also presented in Appendix D.

Disproportionate Minority Contact by Census Tract, for all Minority Youth

Our analysis of the spatial patterns of disproportionate minority contact within the Fairbanks North Star Borough begins with the examination of relative EB rates for all minority youth. The sample used in the following analysis therefore includes all minority youth (i.e., Native youth, Black youth, Asian youth, Pacific youth, other youth, or multiracial youth) of either gender (i.e., male or female) referred for any referral type (i.e., person crimes, property crimes, other criminal offenses, or conduct or probation violations). As has been done throughout the report, we then disaggregate these results by gender, by referral type, and by gender and referral type.

Table 14. Relative EB Rate Indices by Census Tract, for All Minority Youth

Sample	Minimum	Maximum	Median
Full	1.02	5.63	2.30
Male	1.29	5.04	2.43
Female	0.43	6.13	2.14
Person Crime	1.44	7.09	2.71
Property Crime	1.19	4.11	2.05
Other Crime	0.88	4.12	2.18
Probation	1.08	27.30	5.37
Person Crime, Male	1.34	9.41	2.97
Property Crime, Male	1.40	5.51	2.68
Other Crime, Male	0.89	4.59	2.20
Probation, Male	1.44	30.76	5.18
Person Crime, Female	0.67	7.20	2.50
Property Crime, Female	0.89	3.11	1.71
Other Crime, Female	0.64	6.63	1.96
Probation, Female	0.18	46.23	5.80

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Table 14 provides summary statistics for the relative EB rate analyses for all minority youth. This table revealed several key findings. First, minimum relative EB rate indices revealed that there were some census tracts where minority youth were not disproportionately referred to DJJ, relative to White youth. Second, maximum relative EB rate indices revealed that there were always some census tracts where minority youth were disproportionately referred to DJJ, relative to White youth. Maximum relative EB rate indices were particularly high for probation and conduct violations. But again, minimum relative EB rate indices indicated that there was at least one census tract where minority youth were not disproportionately referred to DJJ. This was true even for probation and conduct violations. Finally, median relative EB rate indices revealed that in half the FNSB census tracts, the risk of referral was typically at least two times greater for minority youth than for White youth. Disproportionate minority contact therefore varied a great deal across the FNSB census tracts. Additional details are shown in Figures 2 through 16 (all Figures are in Appendix D).

Figure 2 shows the risk of referral for minority youth relative to the risk of or referral for White youth, by census tract. In all census tracts, the risk of referral to DJJ was greater for minority youth than for White youth (although differences were quite

small in several of the tracts). Figures 3 through 6 examine disproportionate minority contact by referral type (person crimes, property crimes, other criminal offenses, and probation or conduct violations, respectively). In Figure 3, we examine disparities in the risk of referral for person crimes. In all 19 FNSB census tracts, the risk of referral for person crimes was greater for minority youth than for White youth. In half of the FNSB census tracts, the risk of referral for person crimes was at least 2.71 times greater for minority youth than for White youth. Similar results were obtained when examining disparities in the risk of referral for property crimes (Figure 4). The risk of referral for property crimes was greater for minority youth than for White youth in all 19 FNSB census tracts. In half of the FNSB census tracts, the risk of referral for property crimes was at least 2.05 times greater for minority youth than for White youth. Figure 5 displays the geographical distribution of relative EB rates of referral for other criminal offenses. In tract 14, minority youth had a lower risk of referral for other criminal offenses than White youth. In all other tracts, minority youth were at a higher risk of referral for other criminal offenses than White youth. In half the FNSB census tracts, the risk of referral for other criminal offenses was at least 2.18 times greater for minority youth than for White youth. Disparities in the last type of referral (for probation or conduct violations) are mapped in Figure 6. A perfunctory review of Figure 6 shows the gravity of the disparity. Of all the maps thus far examined, Figure 6 shows the most extensive and pervasive level of disproportionate minority contact. In half of the FNSB census tracts, the risk of referral for a conduct or probation violation was at least 5.37 times greater for minority youth than for White youth. In 13 (68%) of the 19 FNSB census tracts, the risk of referral for a conduct or probation violation was at least four times greater for minority youth than for White youth. Moreover, in eight (42%) of the FNSB census tracts, the risk of referral for a conduct or probation violation was at least six times greater for minority youth than for White youth. Despite the magnitude of the problem, it was not found in every FNSB census tract. In some (albeit few), disproportionate minority contact levels were much lower.

Differences by gender and by gender and referral type are now explored. We begin by examining disproportionate minority contact for minority males (Figure 7) and then examine disproportionate minority contact for minority males referred for person crimes (Figure 8), for property crimes (Figure 9), for other criminal offenses (Figure 10), and for probation or conduct violations (Figure 11). Again, all Figures are located in Appendix D. In half of the FNSB census tracts, the risk of referral to DJJ was at least 2.43 times greater for minority males than for White males. In no census tract did the risk of referral for minority males fall below the risk of referral for White males. When we examine the risk of minority males being referred for person crimes (Figure 8), we again see disproportionate levels of referral risk in every census tract. The same is true for minority males being referred for property crimes (Figure 9). In half of the FNSB census tracts, the risk of referral for person crimes was at least 2.97 times greater for minority males than for White males and the risk of referral for property crimes was at least 2.68 times greater for minority males than for White males. Tract 15 had the lowest relative EB rate of referral for crimes against a person (relative EB rate = 1.34, see Table 14), while tract 12 had the highest (relative EB rate = 9.41, see Table 14). No tract had a relative EB rate greater than six for property crime. The risk of referral for other criminal offenses (shown in Figure 10) was greater for minority males than for White males in 18

of the 19 FNSB census tracts. In half of the FNSB census tracts, the risk of referral for other criminal offenses was at least 2.20 times greater for minority males than for White males. Finally, disproportionate minority contact for males referred for probation or conduct violations is shown in Figure 11. Clearly, of all the maps exploring the differential risk of referral for minority males, Figure 11 shows the greatest disparity. In half of the FNSB census tracts, the risk of referral for probation or conduct violations was at least 5.18 times greater for minority males than for White males. Additionally, there were four tracts (tracts 4, 8, 10, and 13) where the risk of referral for probation or conduct violations was more than seventeen times greater for minority males than for White males. Overall, two tracts had a relative EB rate between one and two, six had a relative EB rate between two and four, two had a relative EB rate between four and six, and nine had a relative EB rate greater than six.

Figures 12 through 16 focus on the relative risk of referral for minority females. Summary statistics for these analyses were reported in Table 14. Figure 12 examines the underlying risk for minority females being referred for any referral type relative to that risk for White females. In half of the FNSB census tracts, the risk of referral to DJJ was at least 2.14 times greater for minority females than for White females. However, in four of the 19 FNSB census tracts, White females had a risk of referral that was greater than that of minority females. In other words, there were four census tracts that had a relative EB rate index less than one. Figure 13 maps the relative risk that minority females would be referred for a person crime. In half of the FNSB census tracts, minority females had a risk of referral for person crimes that was at least 2.50 times that of White females. Although minority females were generally more at-risk of being referred to DJJ for person crimes than White females, there were three tracts where White females were at greater risk. Disproportionate minority contact for property crimes is shown in Figure 14. In 18 of the 19 tracts, minority females were at greater risk of referral for property crimes than White females. In half of the FNSB census tracts, the risk of referral for property crime was at least 1.71 times greater for minority females than for White females. No tract had a relative EB rate greater than 3.11. Results for females referred for other criminal offenses are mapped in Figure 15. For this referral type, the relative risk of referral for minority females varied from 0.64 (Tract 19) to 6.63 (Tract 1). In half of the FNSB tracts, minority females had a risk of referral for other offenses that was at least 1.96 times greater than that of White females. For other criminal offenses, minority females had a risk of referral lower than that of White females in two tracts. Finally, in Figure 16, we examine disproportionate minority contact for females referred for probation or conduct violations. In half of the FNSB census tracts, minority females had a risk of referral for conduct or probation violations that was at least 5.80 times greater than that of White females. However, unlike all minority youth and male minority youth, there were four tracts in which the relative EB rate of referral for a conduct or probation violation was less than one. Stated differently, there were four tracts where White females had a greater risk of referral for conduct or probation violations than minority females.

Overall, there appears to be substantial variability across census tracts in the extent to which disproportionate minority contact occurred, for whom, and for what type of referral. As previously documented, the highest levels of disproportionate minority contact occurred with referrals for probation or conduct violations. But even for those

referrals, there were some census tracts where disproportionate minority contact was low or non-existent. Summaries by tract will be presented in the conclusion section of this report. We now turn our attention to Native youth.

Disproportionate Minority Contact by Census Tract, for Native Youth

Table 15 provides summary statistics for the relative EB rates for Native youth. As with all minority youth, there were some census tracts where Native youth were not disproportionately referred to DJJ relative to White youth (some minimum relative EB rate indices are below one). However, and contrary to the results for all minority youth, the maximum relative EB rate indices indicate very high levels of disproportionate minority contact for Native youth, in at least some census tracts. This was particularly true for referrals for probation or conduct violations. For example, the risk of referral for probation or conduct violation was, in one tract, 103.18 times greater for Native youth than for White youth. Results also clearly indicated that high levels of disproportionate minority contact were found in at least half of the census tracts (see median statistics). These statistics generally indicate that in at least half of the FNSB census tracts, the risk of referral was at least three to 17 times greater for Native youth than for White youth.

Table 15. Relative EB Rate Indices by Census Tract, for Native Youth

Sample	Minimum	Maximum	Median
Full	2.28	29.20	4.44
Male	1.99	26.23	5.27
Female	0.88	15.82	4.78
Person Crime	2.00	29.12	6.03
Property Crime	2.09	16.95	3.93
Other Crime	1.68	21.85	4.33
Probation	1.49	103.18	15.09
Person Crime, Male	2.56	16.81	5.66
Property Crime, Male	1.97	20.56	4.73
Other Crime, Male	1.40	12.60	3.63
Probation, Male	1.80	97.75	17.63
Person Crime, Female	1.66	22.51	7.03
Property Crime, Female	1.74	7.94	3.98
Other Crime, Female	2.21	14.41	6.68
Probation, Female	0.31	62.93	17.65

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

We begin this section by first exploring the risk of referral for Native youth relative to the risk of referral for White youth (Figure 17). Native youth clearly had a higher risk of referral than White youth and this disparity in the risk of referral was substantial and widespread. The relative EB rate indices ranged from a low of 2.28 (Tract 2) to a high of 29.2 (Tract 18). In half of the FNSB census tracts, Native youth had a risk of referral that was at least 4.44 times greater than that of White youth. These results are now disaggregated by type of referral. In Figure 18, we examine the disparate risk of referral experienced by Native youth for person crimes. Again, the extent of disproportionate minority contact for Native youth was substantial and widespread. In

half of the FNSB census tracts, the risk of referral for person crimes was at least 6.03 times greater for Native youth than for White youth. Similar results were found with referrals for property crimes (see Figure 19). Native youth experienced a greater risk of referral for property crimes in every FNSB census tract. Moreover, the risk of referral for property crimes was at least two times greater for Native youth than for White youth in every FNSB census tract. In half of the FNSB census tracts, the risk of referral for property crimes was at least 3.93 times greater for Native youth than for White youth. In Figure 20, we explore referrals for other criminal offenses. Again, Native youth were at a greater risk of referral than White youth in every census tract. In half of the FNSB census tracts, the risk of referral for other criminal offenses was at least 4.33 times greater for Native youth than for White youth. Finally, we examine referrals for probation or conduct violations (Figure 21). The disparities seen in Figure 21 are greater than those observed in any other analysis heretofore conducted. In 13 of the 19 census tracts, Native youth had a risk of referral for conduct or probation violations that was at least six times greater than that of White youth. Furthermore, in half of the FNSB census tracts, Native youth had a risk of referral for conduct or probation violations that was at least 15.09 times greater than that of White youth. So far, results clearly reveal very high levels of disproportionate minority contact for Native youth, in all census tracts and for all types of referral (but especially for probation and conduct violations). We now examine whether this is also true for Native males.

The extent to which Native males were disproportionately referred to DJJ by census tract is shown in Figure 22. In every census tract, Native males had a higher risk of referral than White males. In half of the FNSB census tracts, Native males had a risk of referral that was at least 5.27 times greater than that of White males. In 12 of the 19 tracts, Native males had a risk of referral that was at least four times that of White males. Additionally, in eight tracts, Native males had a risk of referral that was more than six times that of White males. Similar results were obtained when we focused on referrals for person crimes (Figure 23). Native males had a disproportionately high risk of referral for person crimes in every census tract, and the differences between Native males and White males were substantial. In half of the FNSB census tracts, Native males had a risk of referral for person crimes that was at least 5.66 times greater than that of White males. Eight of the census tracts had a relative EB rate index greater than six. Figure 24 examines referrals for property crimes. In half of the FNSB census tracts, the risk of referral for property crimes was at least 4.73 times greater for Native males than for White males. Additionally, there were no tracts in which Native males were at a lower risk of referral than White males. Referrals for other criminal offenses are displayed in Figure 25. Like every other map for Native youth, there were no tracts in which Native males had a lower risk of referral than White males. In half of the FNSB census tracts, the risk of referral for other criminal offenses was at least 3.63 times greater for Native youth than for White youth. The substantial disparities in referrals for probation and conduct violations previously found remain true among Native males (see Figure 26). Native males were substantially more likely to be referred to DJJ for probation and conduct violations than White males. Moreover, these disparities were quite large with relative EB rates ranging from 1.80 (Tract 2) to 97.75 (Tract 8). In half of the FNSB census tracts, the risk of referral for conduct or probation violations was at least 15.09

times greater for Native males than for White males. Only two tracts had a relative EB rate index less than four.

We now turn our attention to Native females. The extent to which Native females were disproportionately referred to DJJ by census tract is displayed in Figure 27. Summary statistics for these analyses were previously reported in Table 15. Unlike all preceding analyses for Native youth, there was one tract (Tract 10) in which the risk of referral for Native females was less than that of White females. However, in the other 18 tracts, the risk of referral for Native females exceeded that of White females. In half of the FNSB census tracts, the risk of referral to DJJ was at least 4.78 times greater for Native females than for White females. In eight of the FNSB census tracts, the risk of referral to DJJ was at least six times greater for Native females than for White females. Referrals for person crimes are then examined in Figure 28. Native females had a greater risk of referral for person crimes than White females in every tract. In half of the FNSB census tracts, Native females had a risk of referral for person crimes that was at least 7.03 times greater than that for White females. In 11 of the census tracts, Native females had a risk of referral for person crimes that was at least six times greater than that for White females. Disparities in referrals for property crimes were much less dramatic (see Figure 29). Nonetheless, it remains true that the risk of a referral for a property crime was greater for Native females than for White females in every census tract. In half of the FNSB census tracts, the risk of referral for property crimes was at least 3.98 times greater for Native females than for White females. Similar results were obtained for referrals for other criminal offenses (shown in Figure 30). The risk of referral for other criminal offenses was greater for Native females than for White females, in every census tract. In no census tract was the risk of referral for other criminal offenses less than two times greater for Native females than for White females. In half of the FNSB census tracts, the risk of referral for other criminal offenses was at least 6.68 times greater for Native females than for White females. Finally, we examine disparities in referrals for probation and conduct violations in Figure 31. While high levels of disproportionate minority contact were definitely found, high levels were not found in every census tract. In fact, four census tracts had a relative EB rate less than one. In these four tracts, White females were at a greater risk of referral for a conduct or probation than Native females. In the other tracts, however, Native females were at a substantially higher risk of referral for probation and conduct violations than White females. In 13 tracts, the risk of referral for probation or conduct violations was at least six times greater for Native females than for White females and in half of the FNSB census tracts, the risk of referral for probation or conduct violations was at least 17.65 times greater for Native females than for White females.

Overall, higher levels of disproportionate minority contact were found for Native youth than for all minority youth combined. Nonetheless, there was still substantial variability across census tracts in the extent to which disproportionate minority contact occurred, for whom, and for what type of referral. It remains true that the highest levels of disproportionate minority contact occurred with referrals for probation and conduct violations. In the following section, we examine disproportionate minority contact by census tract for Black youth.

Disproportionate Minority Contact by Census Tract, for Black Youth

Table 16 provides summary statistics for the relative EB rates for Black youth. One key finding that clearly differentiates Black youth from Native youth is readily apparent from Table 16. Minimum statistics indicate that there was at least one census tract (in all analyses) where the risk of referral was lower for Black youth than for White youth. However, both median and maximum statistics revealed that Black youth were generally referred at higher rates than White youth, in most census tracts (except for Black females referred for other crimes). The greatest levels of disproportionate minority contact continue to be found with probation and conduct violations. High levels of disproportionate minority contact were also found for Black youth referred for person crimes, particularly for Black males referred for person crimes.

Table 15. Relative EB Rate Indices by Census Tract, for Black Youth

Sample	Minimum	Maximum	Median
Full	0.91	9.92	3.15
Male	0.97	20.03	3.17
Female	0.39	6.50	1.16
Person Crime	0.54	24.23	4.06
Property Crime	0.60	7.57	2.50
Other Crime	0.14	9.00	2.17
Probation	0.46	17.30	4.29
Person Crime, Male	0.42	59.14	3.19
Property Crime, Male	0.52	13.49	3.04
Other Crime, Male	0.15	17.00	2.04
Probation, Male	0.32	56.67	3.48
Person Crime, Female	0.42	12.74	1.74
Property Crime, Female	0.80	2.23	1.44
Other Crime, Female	0.17	6.34	0.80
Probation, Female	0.14	83.44	2.06

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Figure 32 maps the spatial variation in the relative risk of referral for all Black youth. In 18 of the 19 tracts, Black youth had a higher risk of referral than White youth. In half of the FNSB census tracts, Black youth had a risk of referral that was at least 3.15 times greater than that of White youth. These results are disaggregated by type of referral in Figure 33 (for person crimes), Figure 34 (for property crimes), Figure 35 (for other crimes), and Figure 36 (for probation and conduct violations). Figure 33 shows a great deal of variation in the relative risk of referral for person crimes. Relative EB rate indices ranged from a low of 0.54 (tract 15) to a high of 24.23 (tract 12). In half of the FNSB census tracts, Black youth had a risk of referral for person crimes that was at least 4.06 times greater than that of White youth. Rates of referral for property crimes were less disproportionate than rates of referral for person crimes (see Figure 34). In half of the FNSB census tracts, Black youth had a risk of referral for property crimes that was at least 2.50 times greater than that for White youth (compared to at least 4.06 times greater for person crimes). Nonetheless, the risk of referral for property crimes was at least two times greater for Black youth than for White youth in 13 of the 19 census tracts.

Referrals for other crimes are shown in Figure 35. There were five tracts where Black youth were at a lower risk of referral than White youth. Nonetheless, in half of the FNSB census tracts, the risk of referral for other crimes was at least 2.17 times greater for Black youth than for White youth. As briefly discussed earlier in this section, levels of disproportionate minority contact were again quite high for probation and conduct violations. In 17 of the 19 census tracts, Black youth had a risk of referral for conduct or probation violations that was at least twice that of White youth. In half of the FNSB census tracts, the risk of referral for probation and conduct violations was at least 4.29 times greater for Black youth than for White youth. In seven tracts, the risk of referral for probation and conduct violations was at least six times greater for Black youth than for White youth.

Analyses by census tract for Black males excluded tract 19 because no Black male youth lived in tract 19. In Figures 37 through 41, we therefore examine the spatial variation in the relative risk of referral for Black males in the remaining 18 census tracts. We begin with Figure 37 that examines the relative risk of referral for Black males. Black males had a greater risk of referral than White males in 17 of the 18 analyzed tracts. Furthermore, in eight tracts, Black males had a risk of referral that was at least four times greater than that of White males. In half of the FNSB census tracts, the risk of referral for Black males was at least 3.17 times greater than for White males. More variability was observed in referrals for person crimes (see Figure 18). In particular, there were four tracts where Black males were less likely to be referred for person crimes than White males. However, in half of the FNSB census tracts, Black males had a risk of referral for person crimes that was at least 3.19 times greater than that for White males and in seven tracts, the rate of referral for person crimes was at least six times greater for Black males than for White males. Fairly similar results were found for property crimes (although maximum relative EB rate indices were much lower, see Table 16). In most tracts, Black males had a risk of referral for property crimes that was between two and four times greater than that of White males. In half of FNSB census tracts, Black males had a risk of referral for property crimes that was 3.04 times greater than that of White males. However, Black males were not at a greater risk of referral in all tracts. In 3 tracts, the risk of referral for Black males was less than that of White males. Referrals for other offenses are shown in Figure 40. Of all the analyses thus far conducted for Black males, Figure 40 shows the lowest levels of relative risk. In half of the 18 tracts analyzed, Black males had a risk of referral that was less than twice that of White males. Conversely, however, in the other half of the FNSB census tracts, Black males had a risk of referral for other criminal offenses that was at least 2.04 times greater than that of White males. Finally, we examine referrals for probation or conduct violations in Figure 41. Of all the analyses thus far conducted for Black males, Figure 41 shows the highest levels of relative risk. There was only one tract where the risk of referral for probation and conduct violations was lower for Black males than for White males. In all other tracts, Black males were more likely to be referred for probation or conduct violations than White males. In half of the census tracts, the risk of referral for probation and conduct violations was at least 3.48 times greater for Black males than for White males and in six of the census tracts, the risk was at least six times greater for Black males than for White males.

These results are now examined for Black females, in Figures 42 through 46. Not surprisingly given the results in Table 16, lower levels of disproportionate minority contact were generally noted for Black females than for Black males. Nonetheless, there existed a great deal of geographic variation in the extent to which Black females were disproportionately referred to DJJ. Figure 42 displays the relative risk of referral for Black females. The median relative EB rate index was only 1.17. Furthermore, Black females had a lower risk of referral than White females in seven of the tracts. Black females had a relative EB rate index greater than four in only one census tract (tract 17). Slightly higher levels of disproportionate minority contact were found in referrals for person crimes (see Figure 43). In 11 tracts, Black females had a risk of referral for person crimes that was less than twice that of White females. In half of the FNSB census tracts, Black females had a risk of referral for person crimes that was 1.74 times greater than that of White females. Details on referrals for property crimes are shown in Figure 44. In Figure 44, we see the lowest levels of relative risk heretofore encountered. There were no tracts where Black females had a risk of referral that was more than four times greater that of White females. Moreover, in most of census tracts, Black females had a risk of referral for property crimes that was less than twice that of White females. Additionally, four tracts have a relative EB rate index less than one, indicating that the risk of referral for Black females was less than that of White females. Similar to Figures 42 through 44, we see very low levels of relative risk in Figure 45, where we examine referrals for other crimes. In the majority of tracts, Black females had a lower risk of referral for other criminal offenses than White females. The most notable disparities observed for Black female youth are found in Figure 46, where we examine referrals for probation or conduct violations. While the disparities in Figure 46 are large relative to other analyses performed for Black females, they are small relative to similar analyses performed for other minorities. In six tracts, Black females were less likely to be referred for probation or conduct violations than White females. In three census tracts, however, the rate or referral for probation and conduct violations was at least six times greater for Black females than for White females.

Overall, lower levels of disproportionate minority contact were found for Black youth than for Native youth. This was particularly true for Black females. Nonetheless, there was still substantial variability across census tracts in the extent to which disproportionate minority contact occurred, for whom, and for what type of referral. Referrals for probation and conduct violations continued to display high levels of disproportionate minority contact. In addition, high levels of disproportionate minority contact were found for Black youth referred for person crimes, particularly for Black males referred for person crimes.

Summary and Conclusions

Disproportionate minority contact occurs when minority youth are significantly more likely than their White (or Caucasian) counterparts to be referred to DJJ. This report provided an in-depth analysis of where, for whom, and for what types of referrals disproportionate minority contact occurred in the Fairbanks North Star Borough. This report began the process of understanding disproportionate minority contact within Alaska (but did not explain *why* disproportionate minority contact occurs).

We began this report by examining volumes, rates, and relative rate indices of referrals to DJJ for youth who resided in the Fairbanks North Star Borough. Our analyses clearly showed substantial disparities in rates of referral. Results indicated that minority youth, as a whole, were disproportionately referred to DJJ. Moreover, when results were disaggregated by gender, by referral type, and by gender and referral type, minority youth continued to be disproportionately referred to DJJ. That is, both male and female minority youth were disproportionately referred to DJJ and minority youth were disproportionately referred for all referral types (i.e., person crimes, property crimes, other criminal offenses, and conduct or probation violations). Overall, Native youth had the highest, most substantial, and most pervasive disparities in rates of referral. Regardless of what analysis was conducted, Native youth consistently had significantly higher rates of referral than White youth. In particular, Native youth were 4.96 times more likely than White youth to be referred to DJJ, 5.30 times more likely to be referred for person crimes, 4.37 times more likely to be referred for property crimes, 4.16 times more likely to be referred for other criminal offenses, and 10.38 times more likely to be referred for conduct or probation violations. Further results showed that Native males were 5.39 times more likely than White males to be referred to DJJ, 5.62 times more likely to be referred for person crimes, 4.88 times more likely to be referred for property crimes, 3.91 times more likely to be referred for other criminal offenses, and 12.69 times more likely to be referred for conduct or probation violations. Similarly, Native females were 4.74 times more likely than White females to be referred to DJJ, 5.21 times more likely to be referred for person crimes, 3.91 times more likely to be referred for property crimes, 5.79 times more likely to be referred for other criminal offenses, and 6.86 times more likely to be referred for conduct or probation violations. Clearly, of all referral types, Native youth (both male and female) had the highest levels of disproportionate minority contact for conduct and probation violations.

Black youth also had significant and widespread levels of disproportionate minority contact. However, the magnitude of the disparities observed for Black youth were not as large as those observed for Native youth. Like Native youth, Black youth were more likely than White youth to be referred to DJJ. Moreover, they were more likely than White youth to be referred for all types of referrals. More specifically, Black youth were 2.62 times more likely to be referred to DJJ than White youth, were 3.37 times more likely to be referred for person crimes, 2.27 times more likely to be referred for property crimes, 1.92 times more likely to be referred for other offense types, and 3.62 times more likely to be referred for conduct or probation violations. Further results indicated that Black males were 3.23 times more likely than White males to be referred for any referral type, 4.25 times more likely to be referred for person crimes, 2.73 times more likely to be referred for property crimes, 2.34 times more likely to be referred for

other criminal offenses, and 4.71 times more likely to be referred for conduct or probation violations. However, unlike the results for Native females, Black females were not more likely than White females to be referred.

We then examined disproportionate minority contact by census tract. Because of earlier results, these analyses focused on all minority youth, Native youth, and Black youth. Findings indicated that there was a great deal of variability in the spatial distribution of disproportionate minority contact. In addition, census tracts were not invariant in their relative risk across racial groups. Knowing that a census tract had a high level of disproportionate minority contact in one analysis did not imply that it would in other analyses. In Table 17, we categorize all of the relative EB rate indices calculated for all 19 census tracts. At first glance, it is again clear that great variability in disproportionate minority contact was found across census tracts.

Table 17. Relative EB Rate Indices by Census Tract

Tract	< 1	1 to 2	2 to 4	4 to 6	> 6	Not Analyzed
Tract 1	3	9	14	6	13	0
Tract 2	3	14	23	4	1	0
Tract 3	5	17	22	1	0	0
Tract 4	4	8	19	8	6	0
Tract 5	14	9	10	7	5	0
Tract 6	2	9	12	9	13	0
Tract 7	5	9	18	9	4	0
Tract 8	9	6	11	6	13	0
Tract 9	1	16	11	8	9	0
Tract 10	8	5	13	5	14	0
Tract 11	3	6	17	1	18	0
Tract 12	0	4	13	6	22	0
Tract 13	0	6	10	11	18	0
Tract 14	3	11	16	3	12	0
Tract 15	5	10	16	7	7	0
Tract 16	3	7	15	10	10	0
Tract 17	0	3	14	7	21	0
Tract 18	4	5	9	9	18	0
Tract 19	6	13	12	5	4	5
Total	**78**	**167**	**275**	**122**	**208**	**5**

Source of data: *Division of Juvenile Justice (FY05/06) & 2000 Census (SF1)*

Again, these analyses primarily reflect disproportionate minority contact for Native and Black youth. By combining the information presented in Figures 2 through 46 into a single table, a great deal of information is obviously lost. Nonetheless, it is clear that tract 5 generally had the lowest levels of disproportionate minority contact. It is also clear that some tracts were characterized with very high levels of disproportionate minority contact. For example, 22 of the 45 relative EB rate indices for tract 12 were greater than six. Similarly, 21 of the 45 relative EB rate indices for tract 17 were greater than six. These geographical distributions may help guide future efforts to uncover why disproportionate minority contact occurs in the Fairbanks North Star Borough.

It is again important to note that these analyses do not explain *why* a tract had a high level of disproportionate minority contact. Rather, they only provide insight into *which* tracts had high levels of disproportionate minority contact. Census tracts may have high levels of disproportionate minority contact for two reasons. First, it is possible that minority youth within these census tracts offend at a higher rate than White or Caucasian youth. Second, it is possible that minority youth within these census tracts are treated more punitively than White or Caucasian youth. Our research will never be able to conclusively determine which factor is the primary cause of the high levels of disproportionate minority contact observed in this report. Nonetheless, future research should examine why minority youth within these census tracts may be offending at a higher rate. Similarly, future research should examine why minority youth within these census tracts may be treated more punitively. Both possible explanations could receive scientific attention, using both quantitative and qualitative techniques.

Future research should also examine disparities that occur within the juvenile justice system. Several research projects have already examined these disparities here in Alaska. However, these studies have not controlled for the prior disparities in juvenile delinquency referrals presented in this report. The most recent and sophisticated research on disproportionate minority contact clearly shows that disparities within the juvenile justice system cannot be studied without taking into account prior disparities in referrals. To examine disparities at one decision point, without taking into account the disparities that have occurred prior to this decision point, can be (and most often is) very misleading. Consequently, future research should examine disparities within the juvenile justice system, while taking into account that many disparities already exist when youth are referred to DJJ.

Appendix A
Technical Notes on Relative Rate Indices

The relative rate index is the rate of minority youths referred to DJJ per 100 minority youths *relative* to the rate of White youths referred to DJJ per 100 White youths. It is a ratio of two rates, as shown in the following formulas:

$$RRI = \frac{\text{Rate of Minority Youths Referred per 100 Minority Youths}}{\text{Rate of White Youths Referred per 100 White Youths}}$$

$$RRI = \frac{(\#\text{ Minority Youths Referred} / \#\text{ Minority Youths in the Population}) \times 100}{(\#\text{ White Youths Referred} / \#\text{ White Youths in the Population}) \times 100}$$

The statistical significance of each relative rate index was calculated using a *Z*-statistic for testing the statistical significance of the difference between two proportions from independent samples, using a two-tailed significance level of 0.05.

Let $\hat{p}_M$ be the sample proportion of minority youths referred, defined as:

$\hat{p}_M = \frac{\#\text{ Minority Youths Referred}}{\#\text{ Minority Youths in the Population}}$, and let

$\hat{p}_W$ be the sample proportion of White youths referred, defined as:

$\hat{p}_W = \frac{\#\text{ White Youths Referred}}{\#\text{ White Youths in the Population}}$.

Then,

$z = \frac{\hat{p}_M - \hat{p}_W}{\hat{\sigma}_{p_M - p_W}}$, where

$\hat{\sigma}_{p_M - p_W}$ is the estimated standard error of the difference between proportions.

This standard error of the difference between proportions was estimated as:

$\hat{\sigma}_{p_M - p_W} = \sqrt{\hat{p}\hat{q}}\sqrt{\frac{n_M + n_W}{n_M n_W}}$, where

$\hat{p}$ is the pooled population proportion, $\hat{q}$ is 1 - $\hat{p}$, and n_M and n_W are the sizes of the minority and White populations, respectively. The pooled population proportion ($\hat{p}$) was calculated as:

$\hat{p} = \frac{n_M p_M + n_W p_W}{n_M + n_W}$, where

p_M and p_W are the sample proportions of minority and White youths referred (as defined above), and n_M and n_W are again the sizes of the minority and White populations, respectively.

Appendix B
Technical Notes on Fisher's Exact Test

Fisher's Exact Test is a nonparametric statistical procedure used in this report to examine the statistical significance of a difference between two observed sample proportions when sample sizes are small (i.e., $N < 30$). The following presentation draws heavily from Hollander & Wolfe (1999).

Fisher's Exact Test begins with the following 2x2 contingency table:

Youth	Referred	Not Referred	Total
Minority	a_{11}	a_{12}	$a_{1\bullet}$
White	a_{21}	a_{22}	$a_{2\bullet}$
Total	$a_{\bullet 1}$	$a_{\bullet 2}$	$a_{\bullet\bullet}$

Where, $a_{\bullet 1} = a_{11} + a_{21}$,
$a_{\bullet 2} = a_{12} + a_{22}$,
$a_{1\bullet} = a_{11} + a_{12}$,
$a_{2\bullet} = a_{21} + a_{22}$, and
$a_{\bullet\bullet} = a_{11} + a_{12} + a_{21} + a_{22}$

The distribution associated with a given contingency table conditional on the marginal totals is then a hypergeometric distribution where the probability of a given table is:

$$\Pr(a_{11} = x \mid a_{1\bullet}, a_{2\bullet}, a_{\bullet 1}, a_{\bullet 2}) = \frac{\binom{a_{1\bullet}}{x}\binom{a_{2\bullet}}{a_{\bullet 1} - x}}{\binom{a_{\bullet\bullet}}{a_{\bullet 1}}} = \frac{a_{\bullet 1}!\, a_{\bullet 2}!\, a_{1\bullet}!\, a_{2\bullet}!}{a_{\bullet\bullet}!\, a_{11}!\, a_{12}!\, a_{21}!\, a_{22}!}$$

Fisher's exact test determines the significance of the observed contingency table relative to the conditional distribution determined by the possible values of a_{11} and the marginal totals. All possible contingency tables with the same marginal totals are created and their associated probabilities are calculated. The 2-tailed *p*-value of the test is then the simple sum of the probabilities of the observed table and all contingency tables which have a probability less than or equal to the probability of the observed table. If this sum is less than or equal to α, the null hypothesis, $p_1 = p_2$, is rejected in favor of the alternative hypothesis, $p_1 \neq p_2$.

Appendix C
Technical Notes on Relative EB Rate Indices

A relative EB rate index (SRRI) is simply the ratio of two empirical Bayes rates (EB rates). More precisely, the relative EB rate index is the empirical Bayes rate of minority youths referred to DJJ per 1,000 minority youths *relative* to the empirical Bayes rate of White youths referred to DJJ per 1,000 White youths. Again, it is a ratio of two empirical Bayes rates, as shown in the following formula:

$$SRRI = \frac{\text{Empirical Bayes Rate of Minority Youths Referred per 1,000 Minority Youths}}{\text{Empirical Bayes Rate of White Youths Referred per 1,000 White Youths}}$$

An empirical Bayes rate adjusts the raw rate by utilizing information from other geographical units. In a statistical sense, the raw rates are shrunk to some more global estimate. In this research, the more global estimate is always set to be the overall mean rate. The extent of shrinking depends on the size of the population at risk within each geographical unit. Rates from geographical units with small populations at risk will be shrunk to a much greater extent than others.

We now describe empirical Bayes rates in greater detail. Consider the raw rate of referral, for any demographic group, in geographical unit *i* to be:

$R_i = \frac{n_i}{P_i}$, where n_i is the number of youth referred and P_i is the number of youth at risk.

Now consider the global estimate of the raw rate, for any demographic group, and for all geographical units (i = 1 to N) to be the simple average raw rate:

$$\overline{R} = \sum_{i=1}^{N} n_i \Big/ \sum_{i=1}^{N} P_i$$

The EB rate is then a weighted average of R_i and the global estimate:

$EBR_i = w_i R_i + (1 - w_i)\overline{R}$, where w_i is the weight, calculated as:

$w_i = \frac{s^2}{s^2 + \left(\overline{R}/P_i\right)}$, where s^2 is the variance of the global estimate estimated as:

$$s^2 = \frac{\left[\sum_{i=1}^{N} P_i \left(R_i - \overline{R}\right)^2\right]}{\sum_{I=1}^{N} P_i} - \frac{\overline{R}}{\sum_{i=1}^{N} P_i \Big/ N}.$$

The weight, w_i, is assigned so that as the population at risk becomes large (i.e., as $P_i \to \infty$), little shrinkage will happen to R_i (i.e., $EBR_i \to R_i$). Conversely, as the population at risk becomes small (i.e., as $P_i \to 0$), significant shrinkage will happen to R_i (i.e., $EBR_i \to \overline{R}$).

Appendix D
Maps

Figure 2. Relative EB Rate Indices By Census Tract - All Minority Youth Referred For Any Referral Type

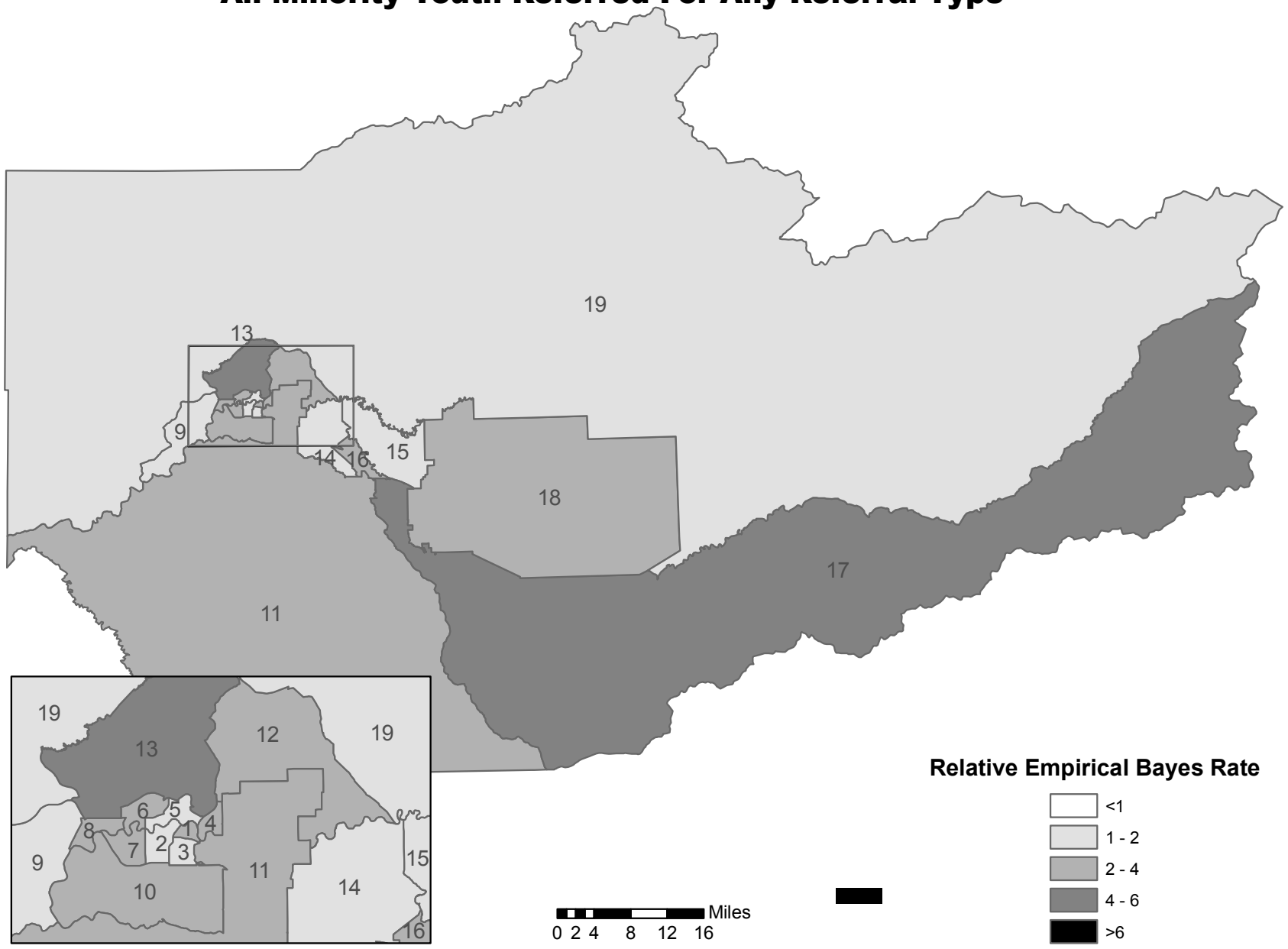


Figure 3. Relative EB Rate Indices By Census Tract - All Minority Youth Referred For a Crime Against a Person

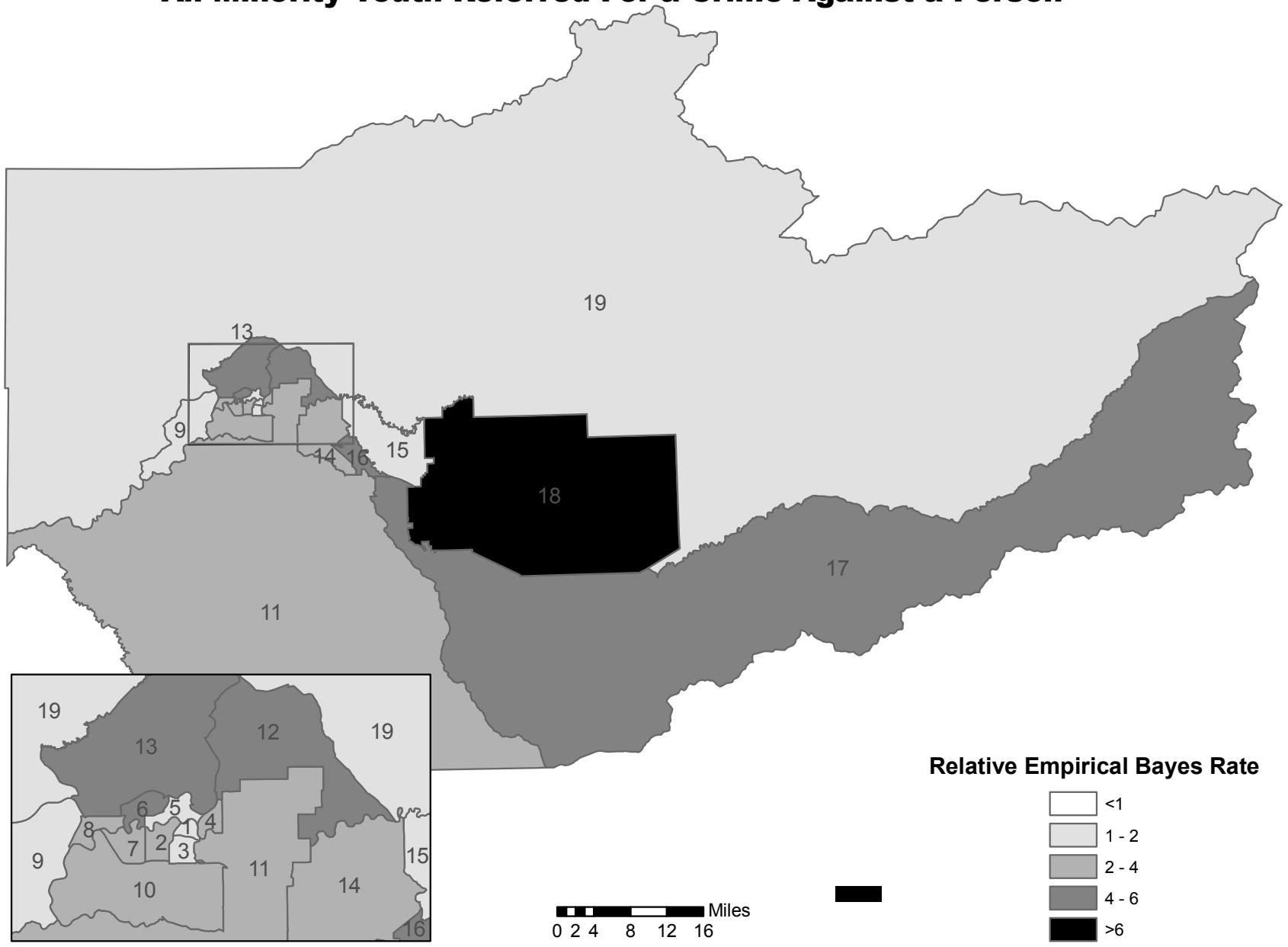


Figure 4. Relative EB Rate Indices By Census Tract - All Minority Youth Referred For A Crime Against Property

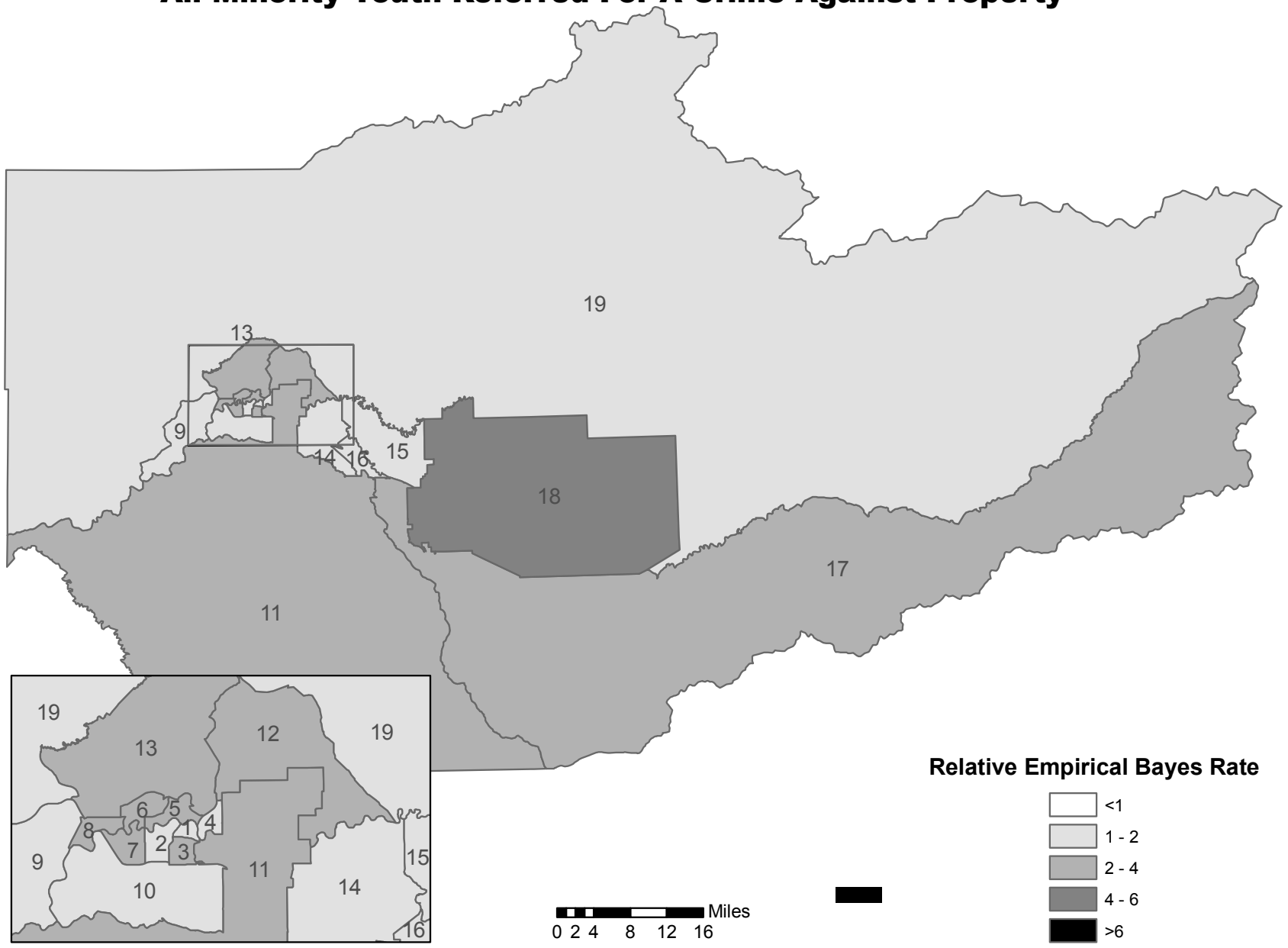


Figure 5. Relative EB Rate Indices By Census Tract - All Minority Youth Referred For Other Criminal Offense Types

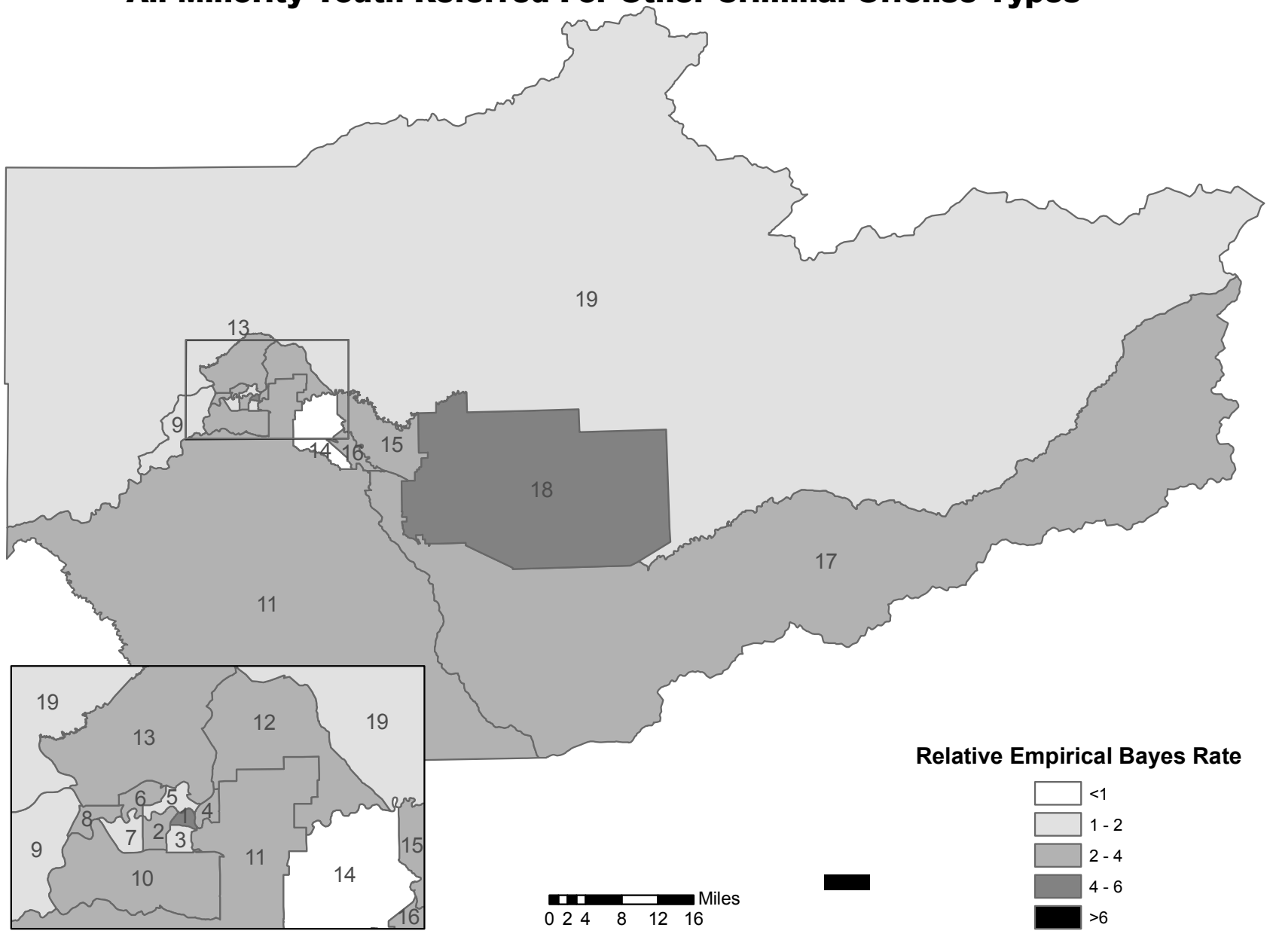


Figure 6. Relative EB Rate Indices By Census Tract - All Minority Youth Referred For A Probation or Conduct Violation

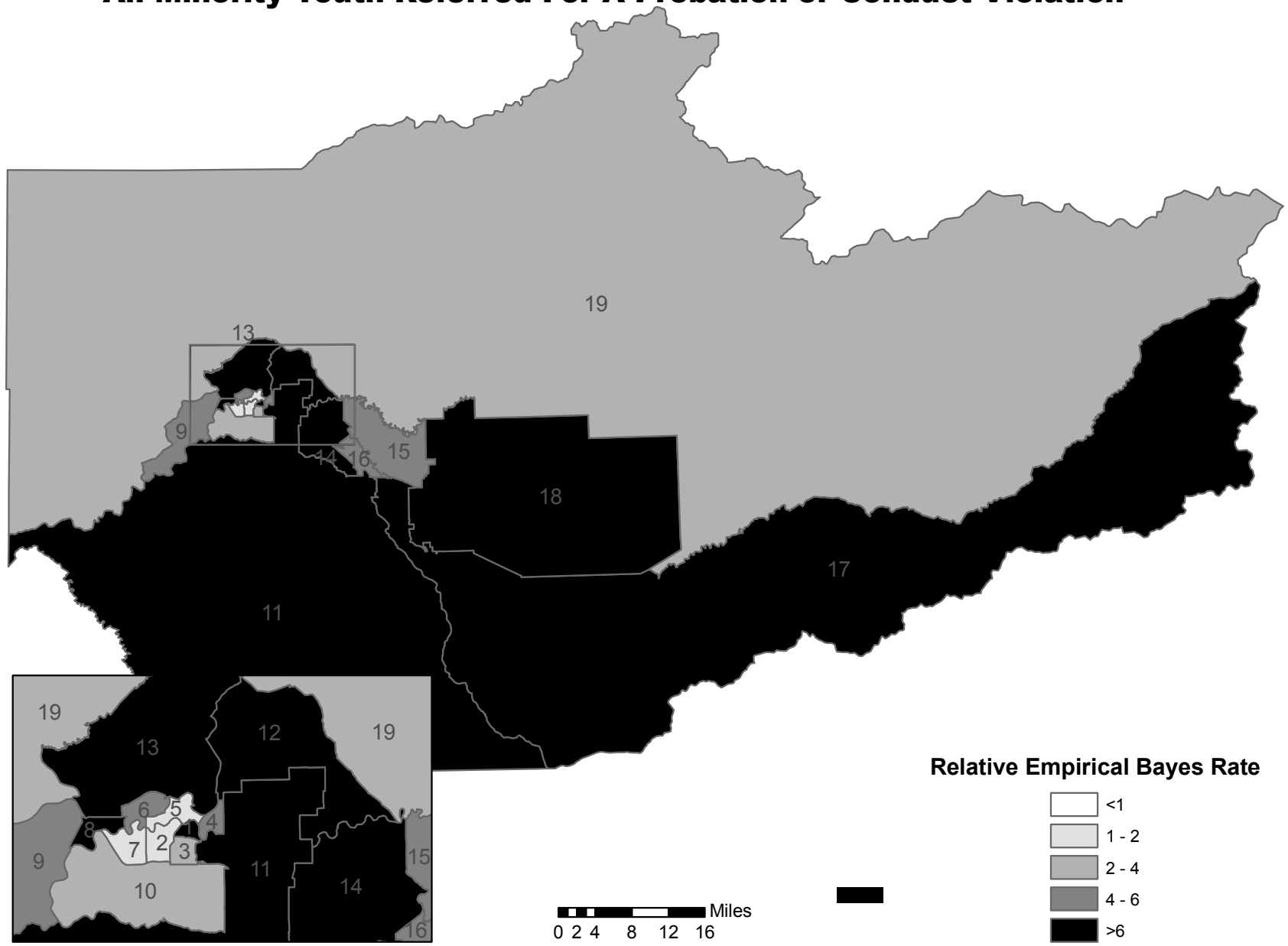


Figure 7. Relative EB Rate Indices By Census Tract - All Male Minority Youth Referred For Any Referral Type

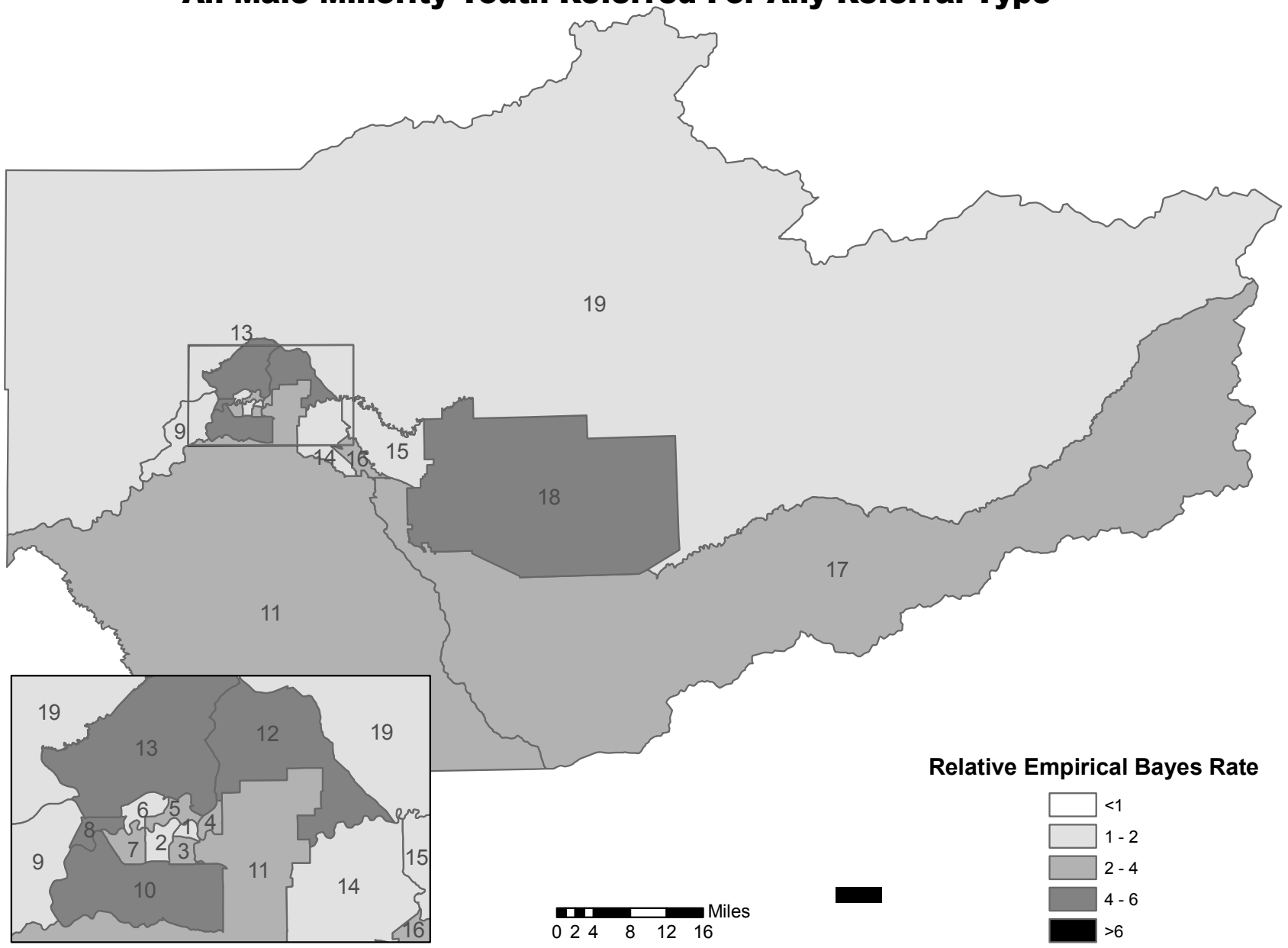


Figure 8. Relative EB Rate Indices By Census Tract - All Male Minority Youth Referred For a Crime Against a Person

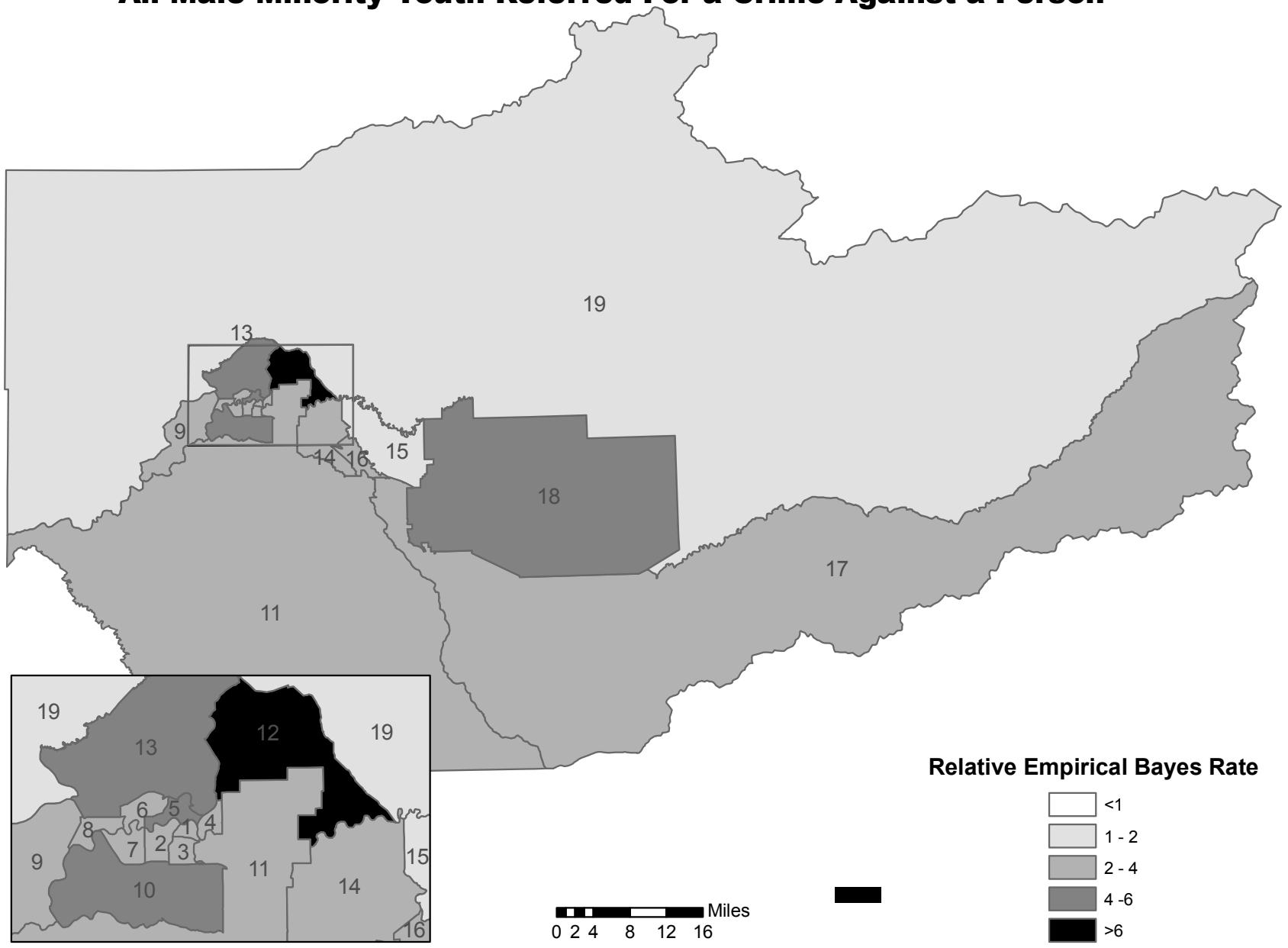


Figure 9. Relative EB Rate Indices By Census Tract -
All Male Minority Youth Referred For A Crime Against Property

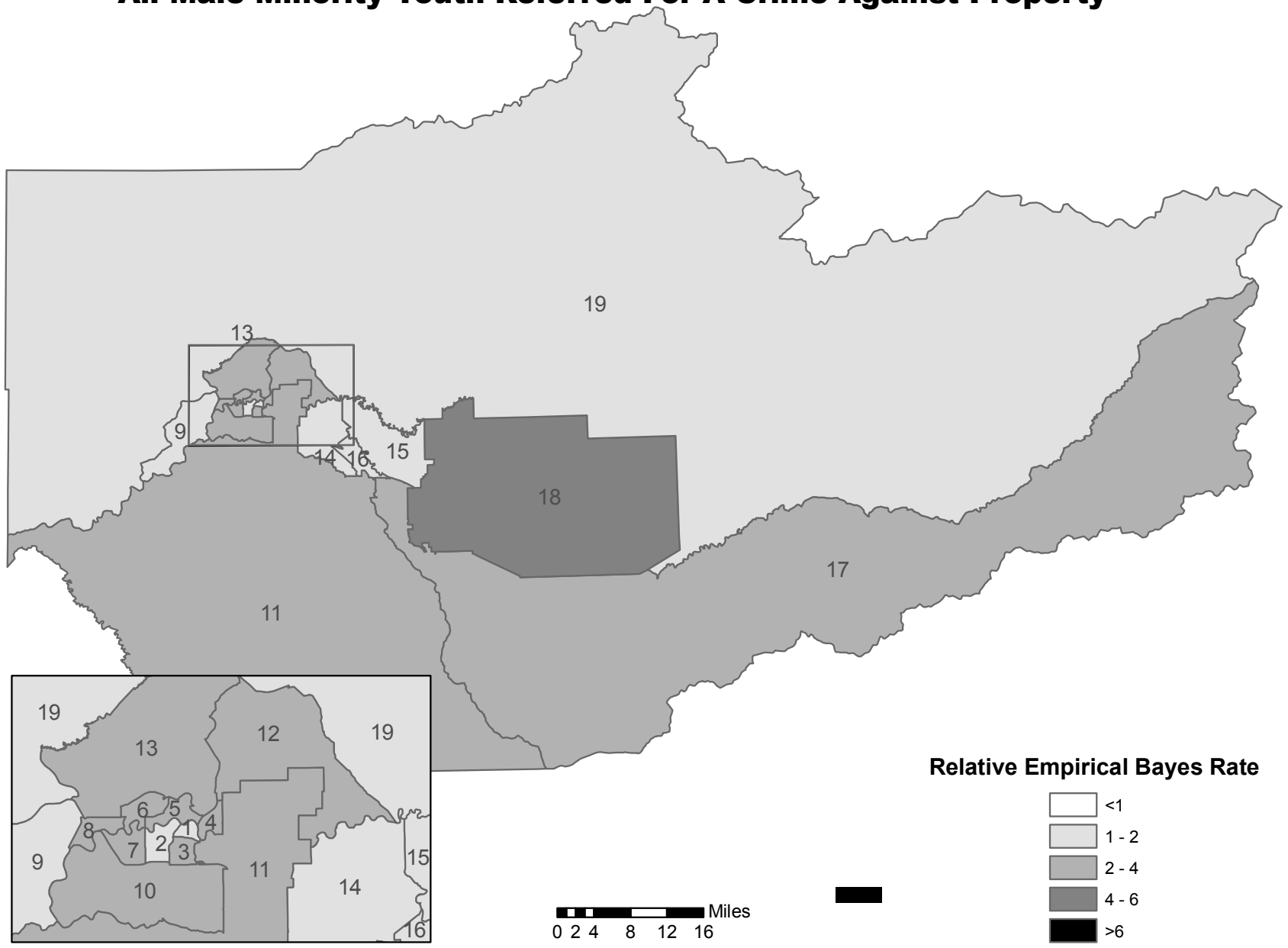


Figure 10. Relative EB Rate Indices By Census Tract - All Male Minority Youth Referred For Other Criminal Offense Types

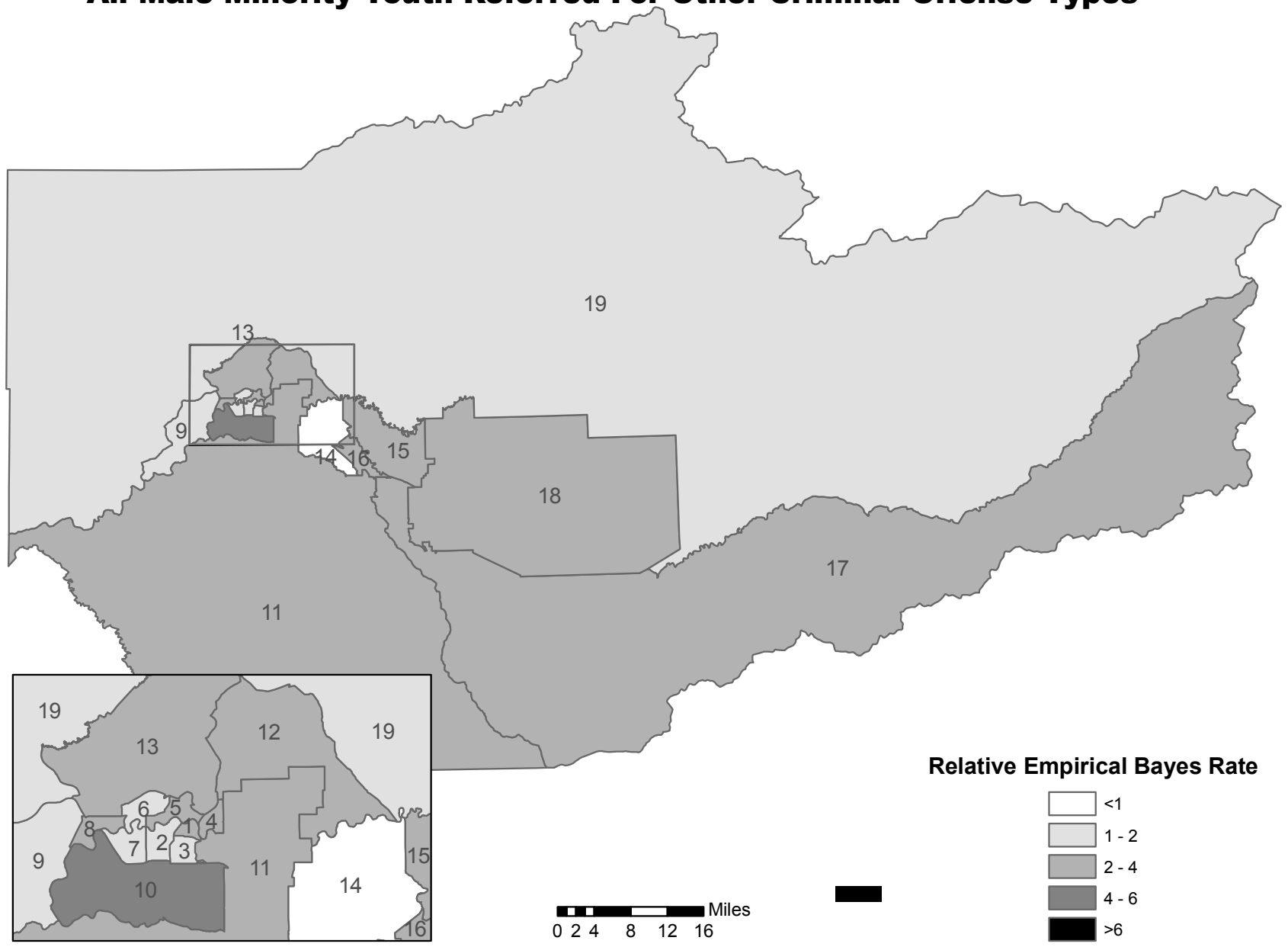


Figure 11. Relative EB Rate Indices By Census Tract - All Male Minority Youth Referred For A Probation or Conduct Violation

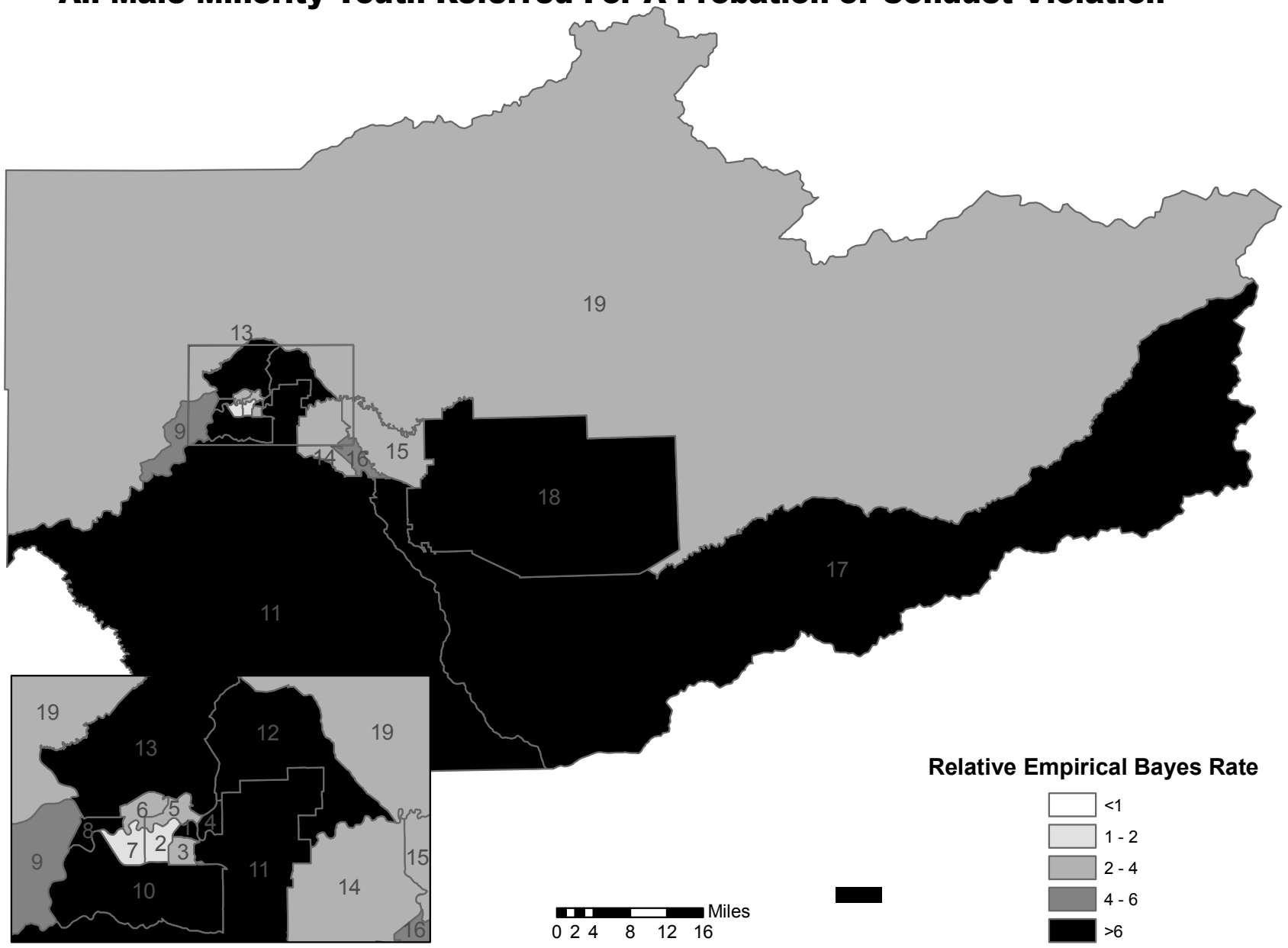


Figure 12. Relative EB Rate Indices By Census Tract - All Female Minority Youth Referred For Any Referral Type

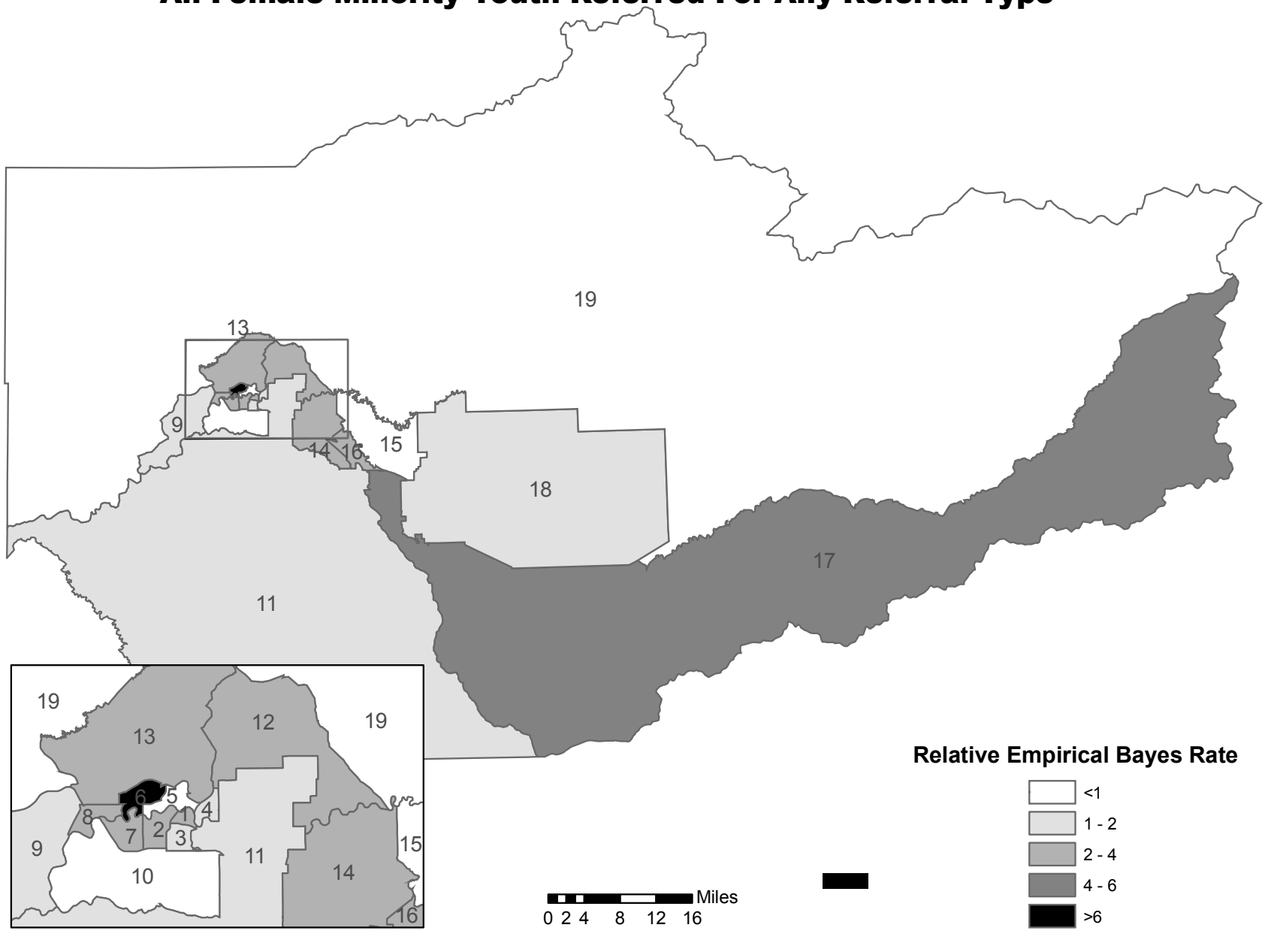


Figure 13. Relative EB Rate Indices By Census Tract - All Female Minority Youth Referred For a Crime Against a Person

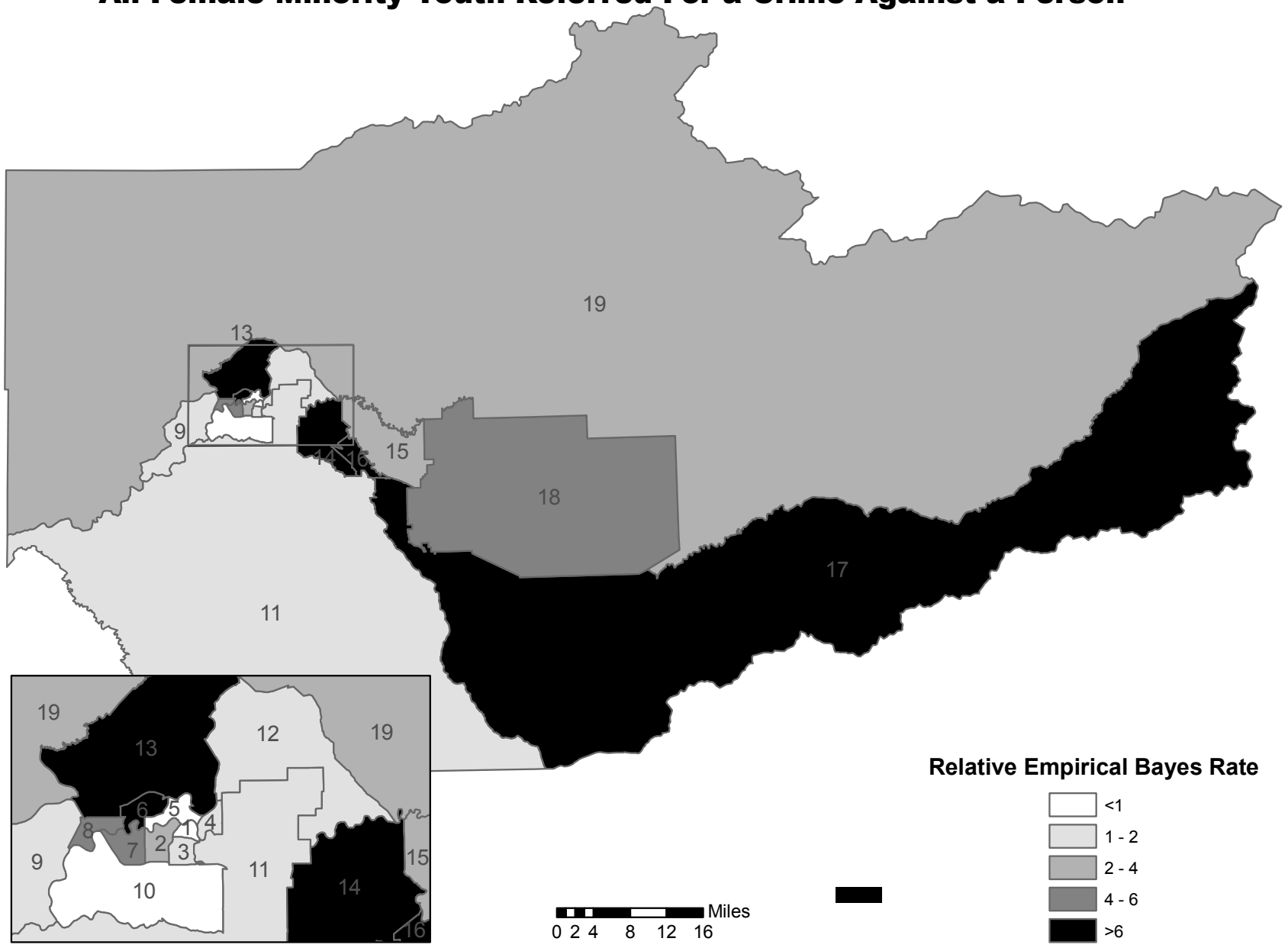


Figure 14. Relative EB Rate Indices By Census Tract - All Female Minority Youth Referred For A Crime Against Property

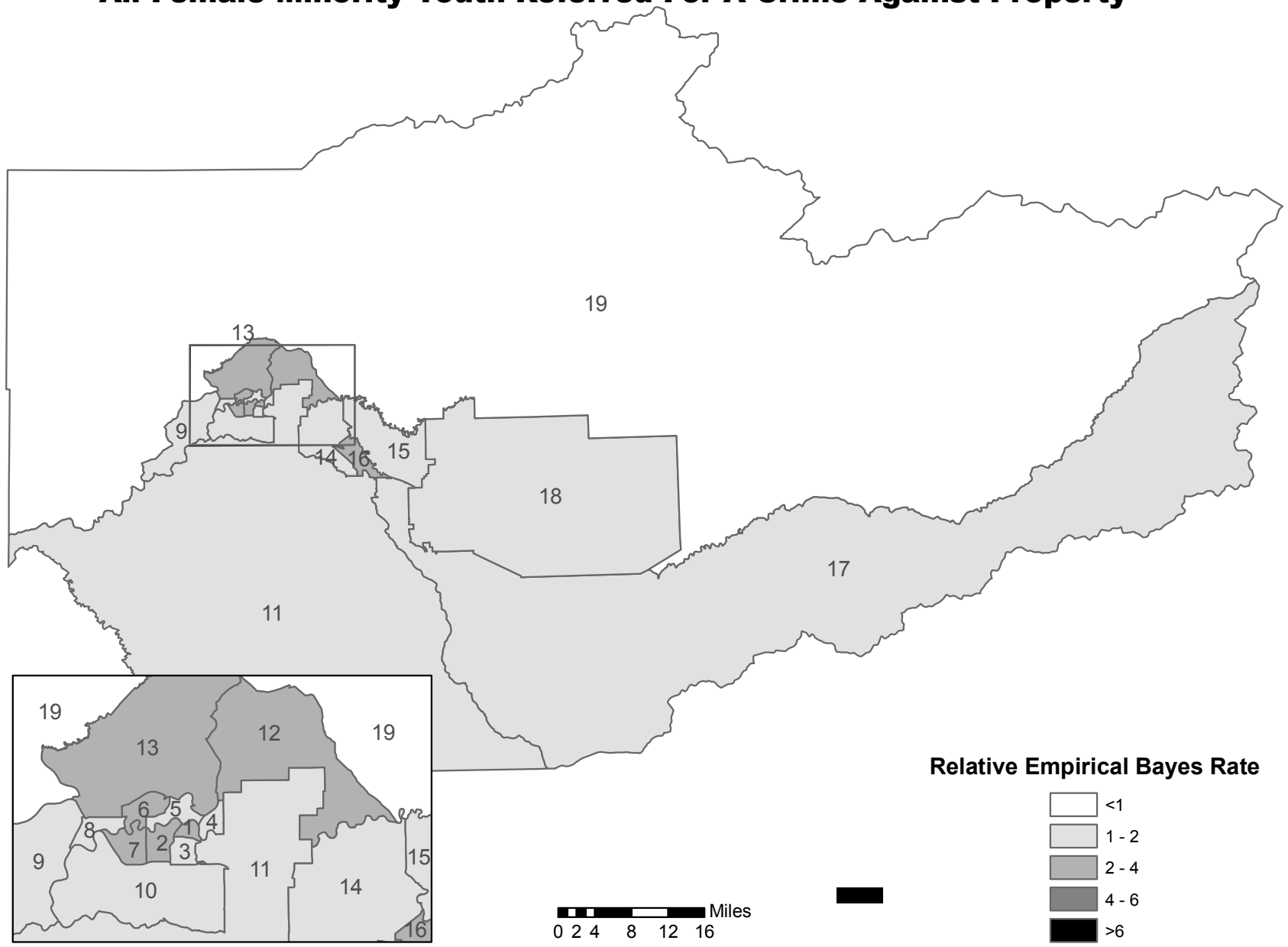


Figure 15. Relative EB Rate Indices By Census Tract - All Female Minority Youth Referred For Other Criminal Offense Types

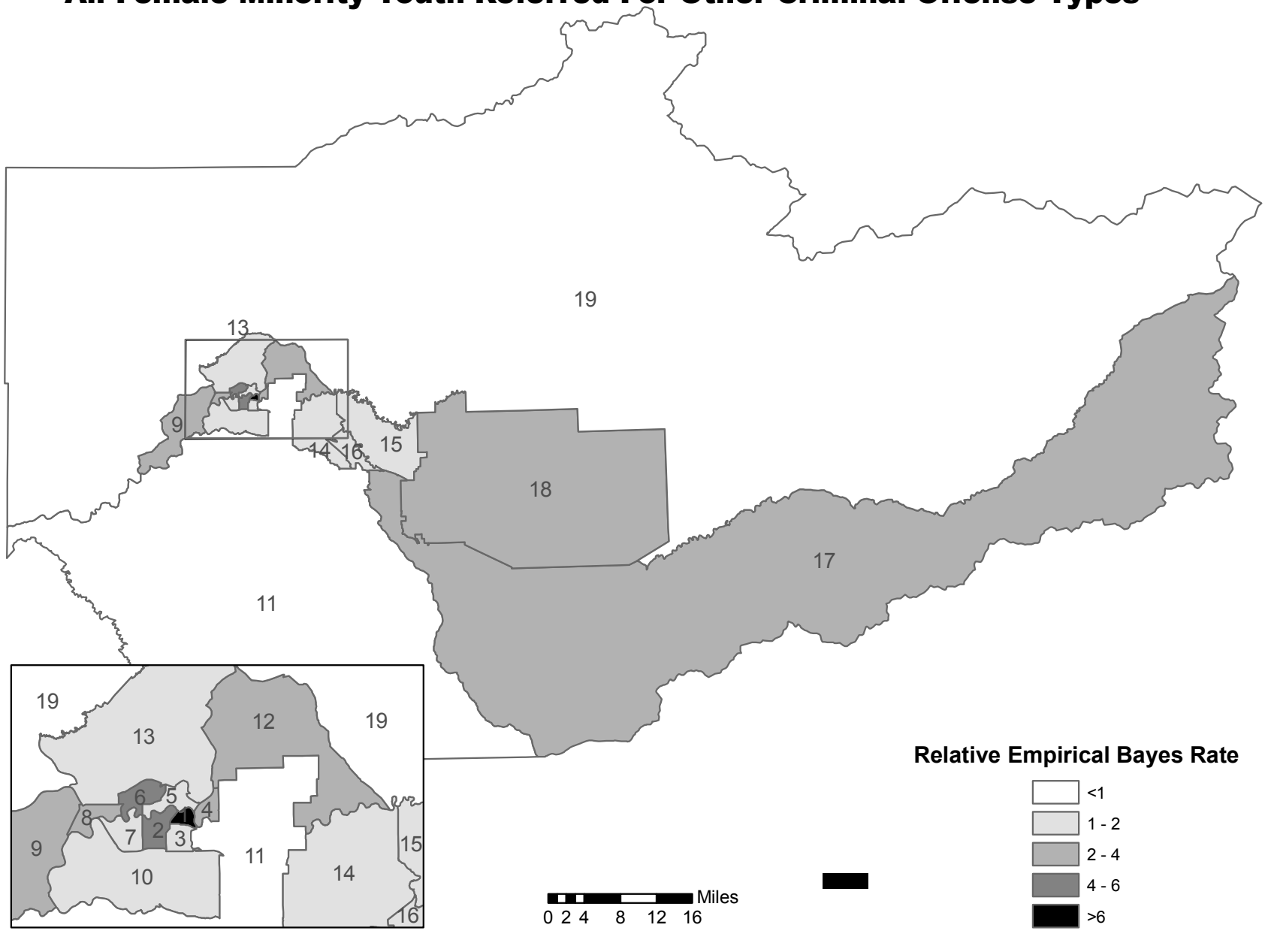


Figure 16. Relative EB Rate Indices By Census Tract - All Female Minority Youth Referred For A Probation or Conduct Violation

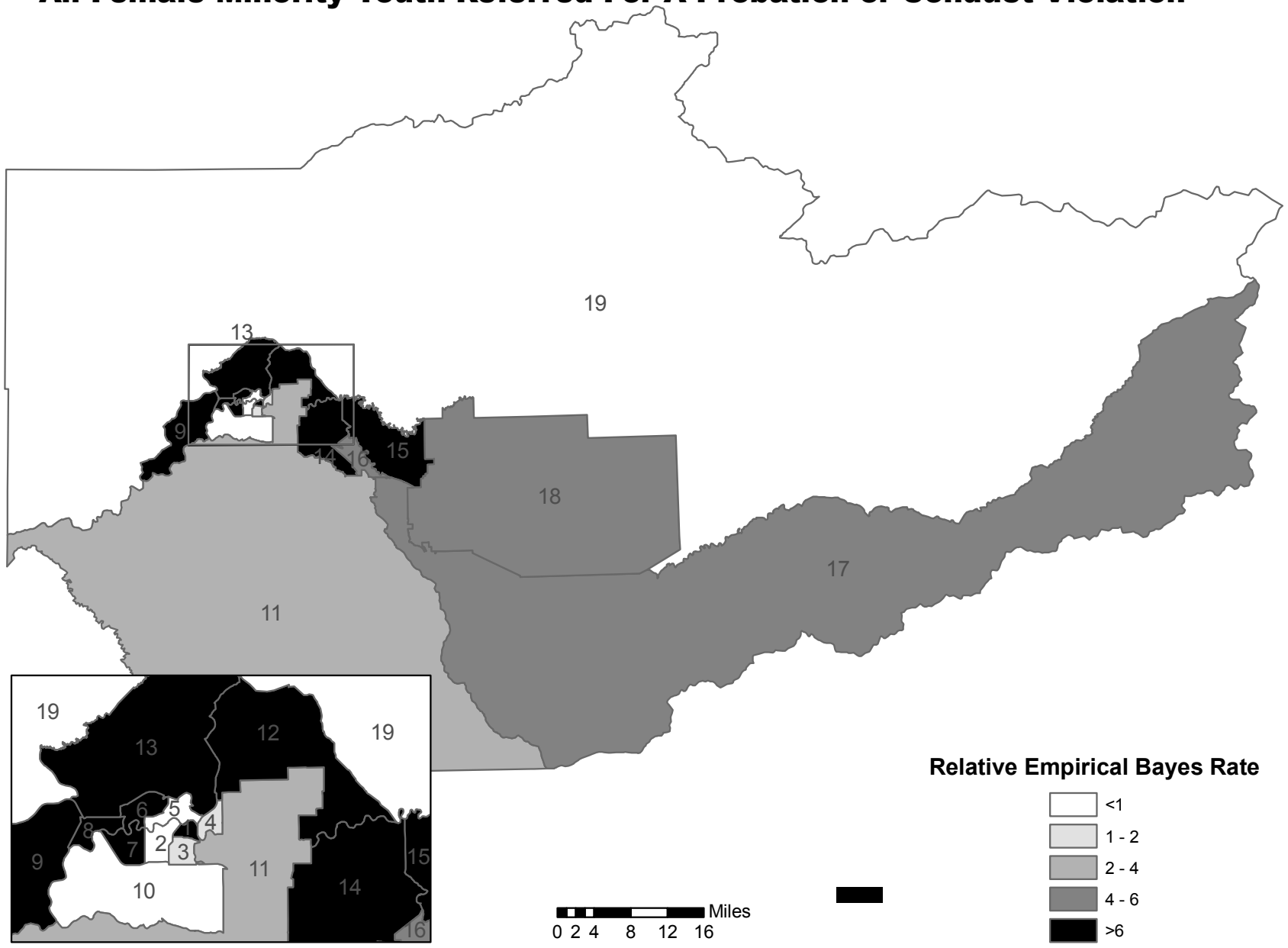


Figure 17. Relative EB Rate Indices By Census Tract - Native Youth Referred For Any Referral Type

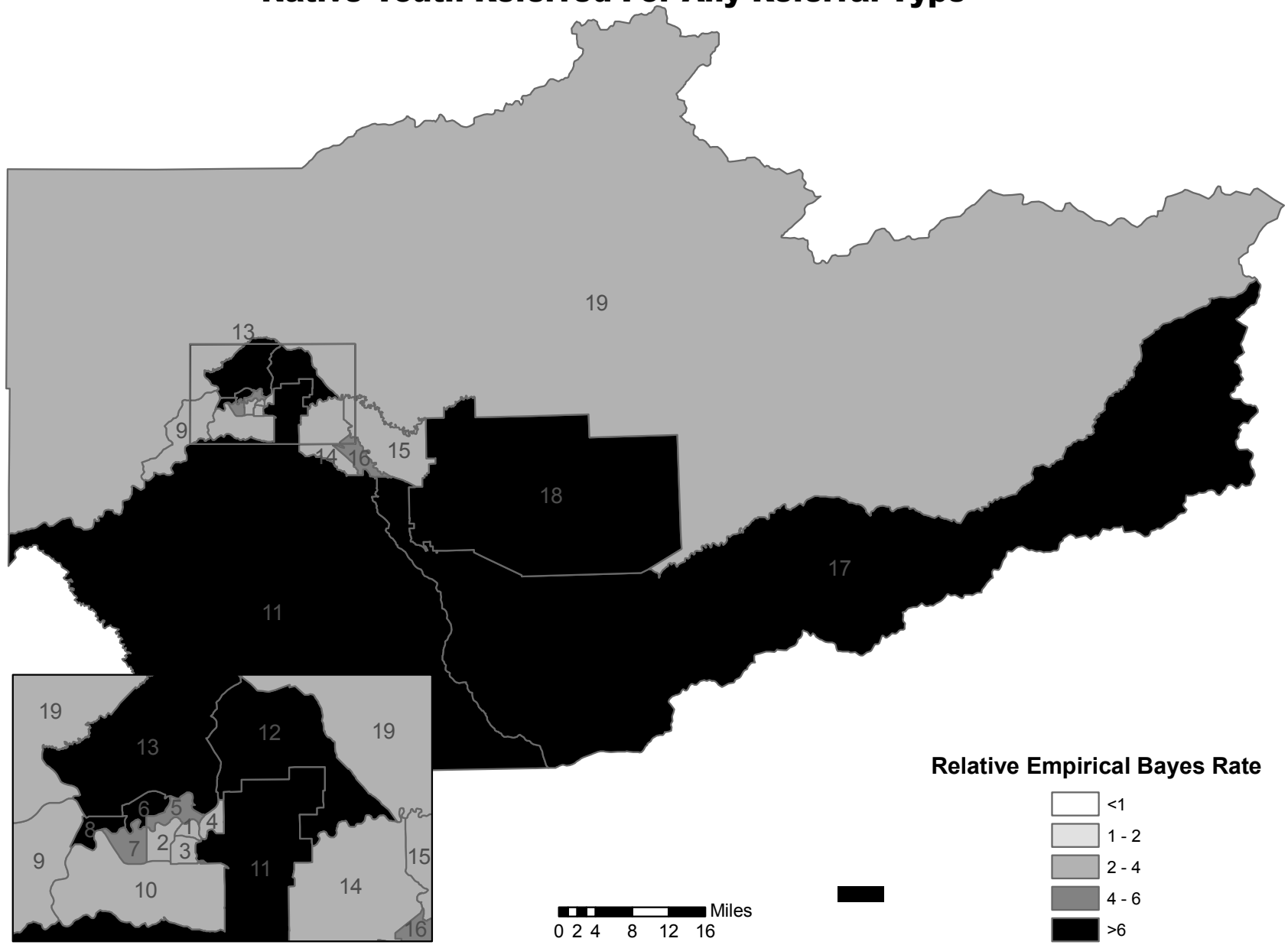


Figure 18. Relative EB Rate Indices By Census Tract - Native Youth Referred For a Crime Against a Person

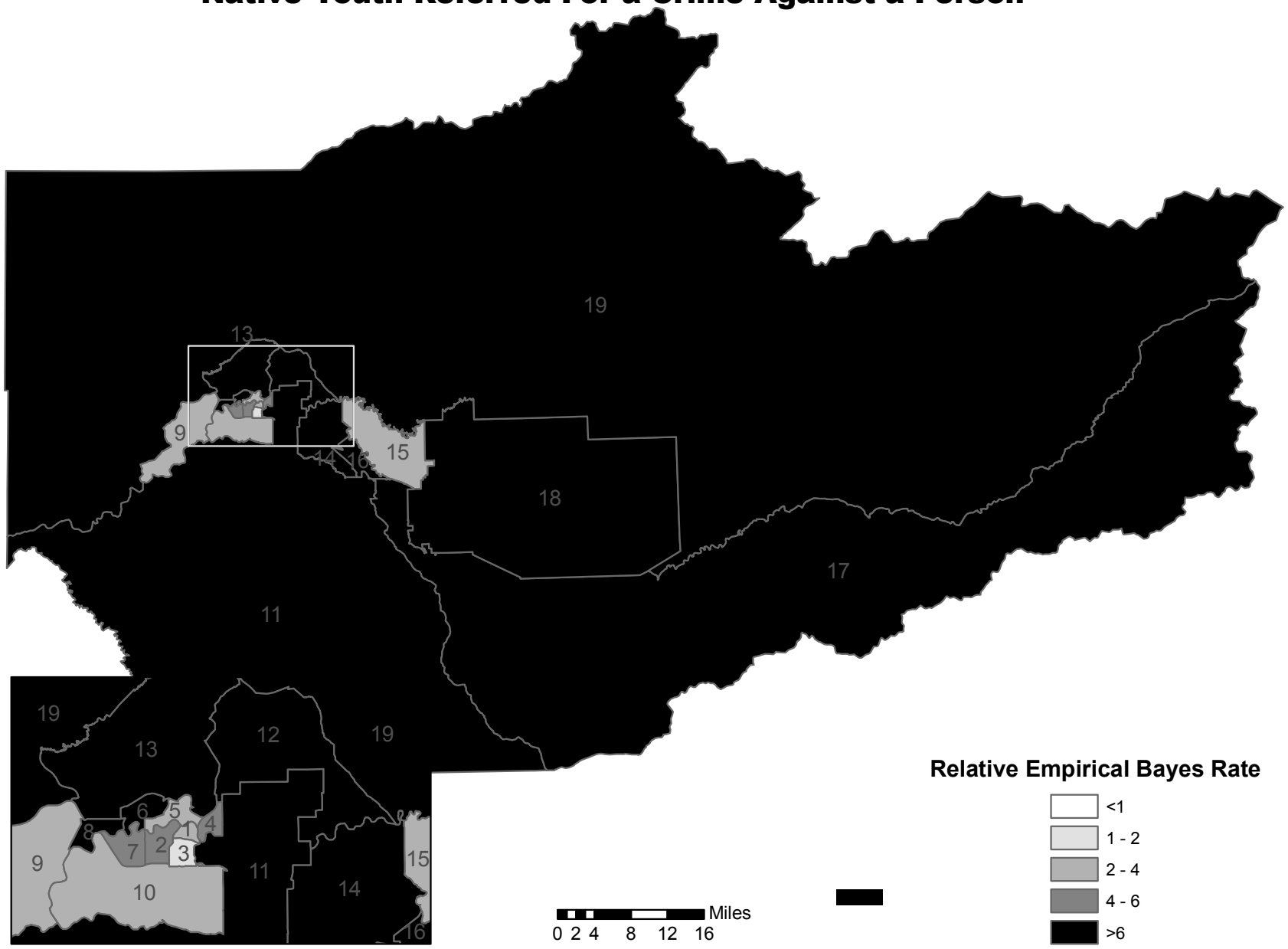


Figure 19. Relative EB Rate Indices By Census Tract - Native Youth Referred For A Crime Against Property

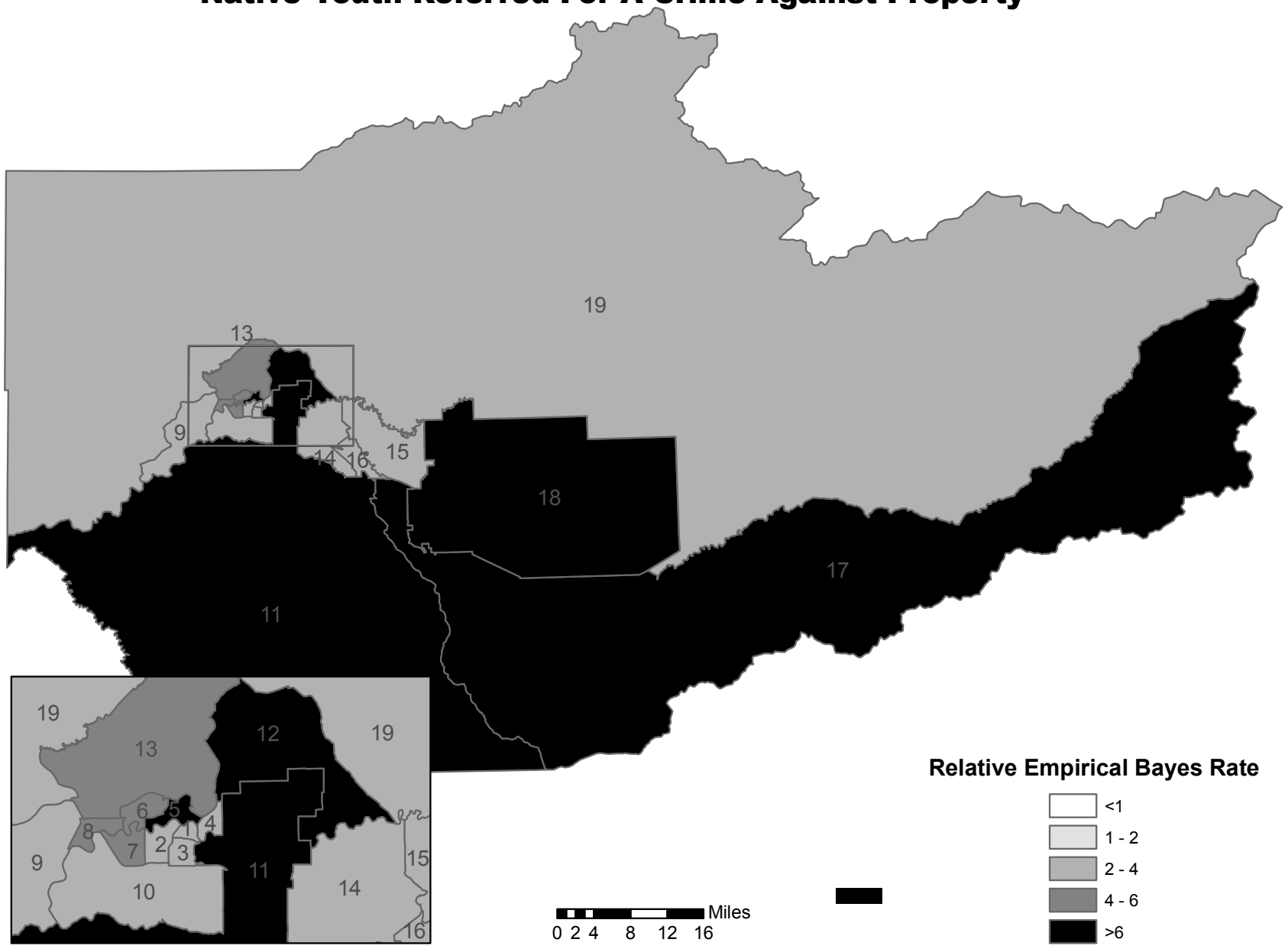


Figure 20. Relative EB Rate Indices By Census Tract - Native Youth Referred For Other Criminal Offense Types

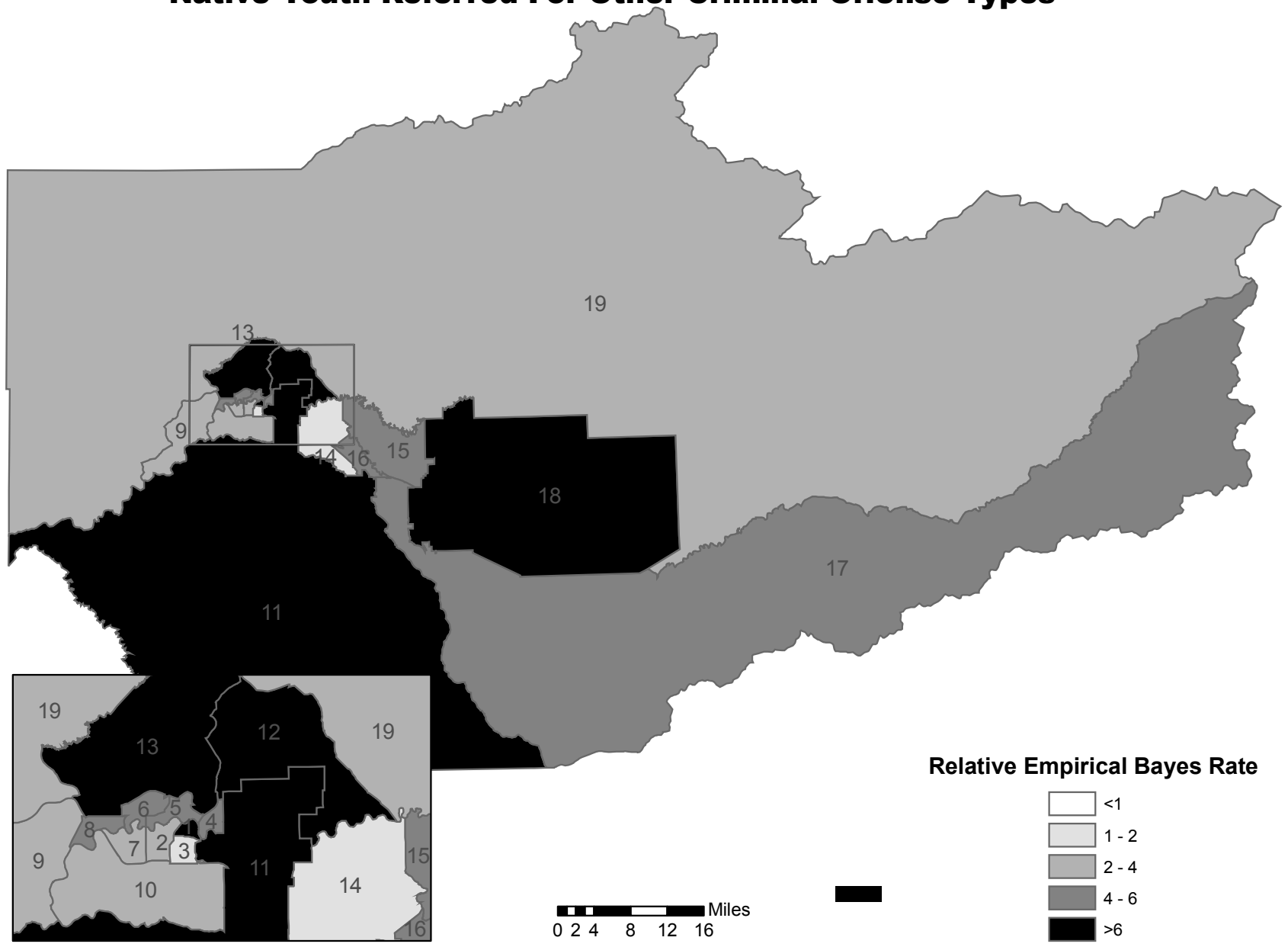


Figure 21. Relative EB Rate Indices By Census Tract - Native Youth Referred For A Probation or Conduct Violation

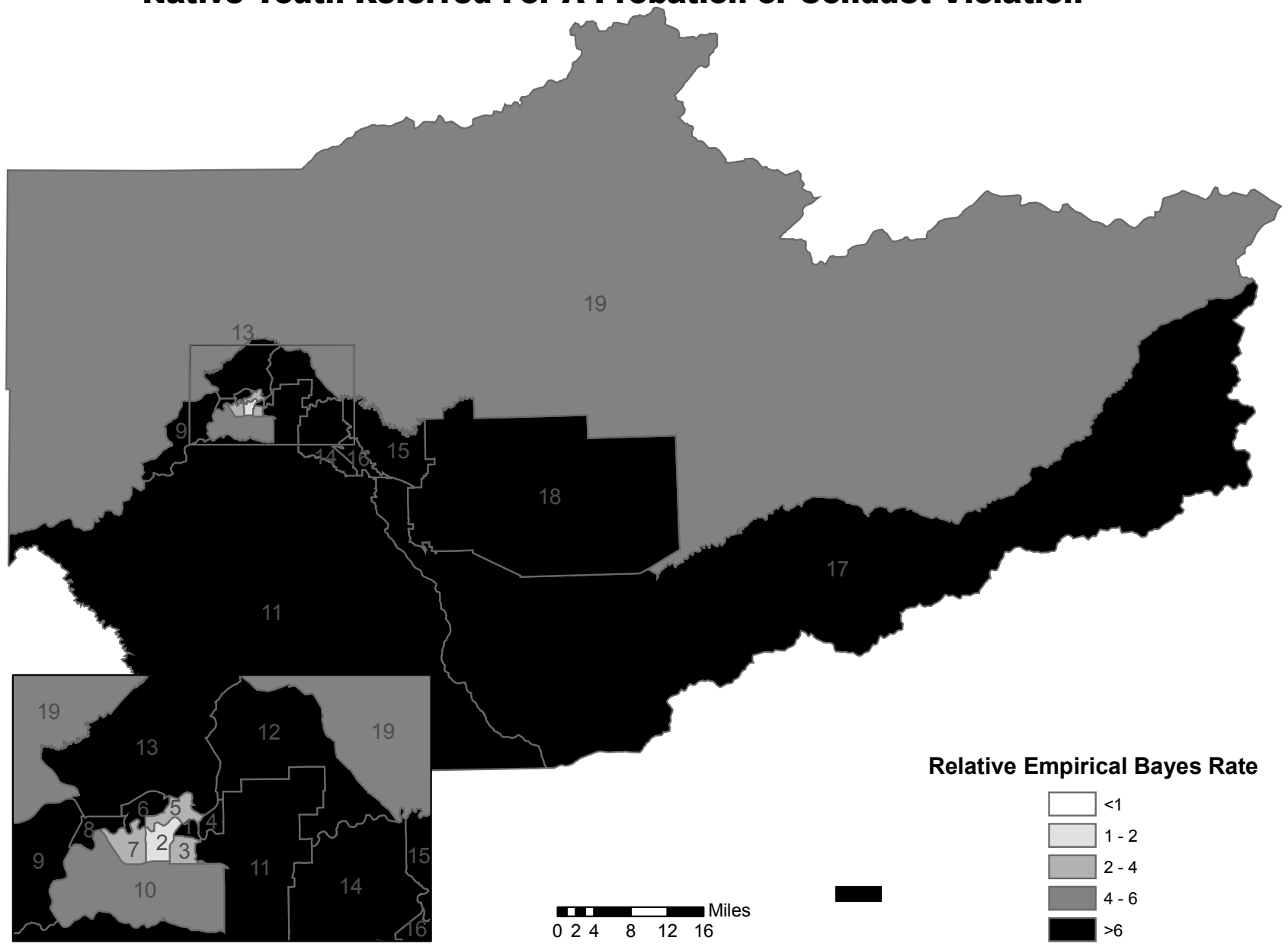


Figure 22. Relative EB Rate Indices By Census Tract - Native Male Youth Referred For Any Referral Type

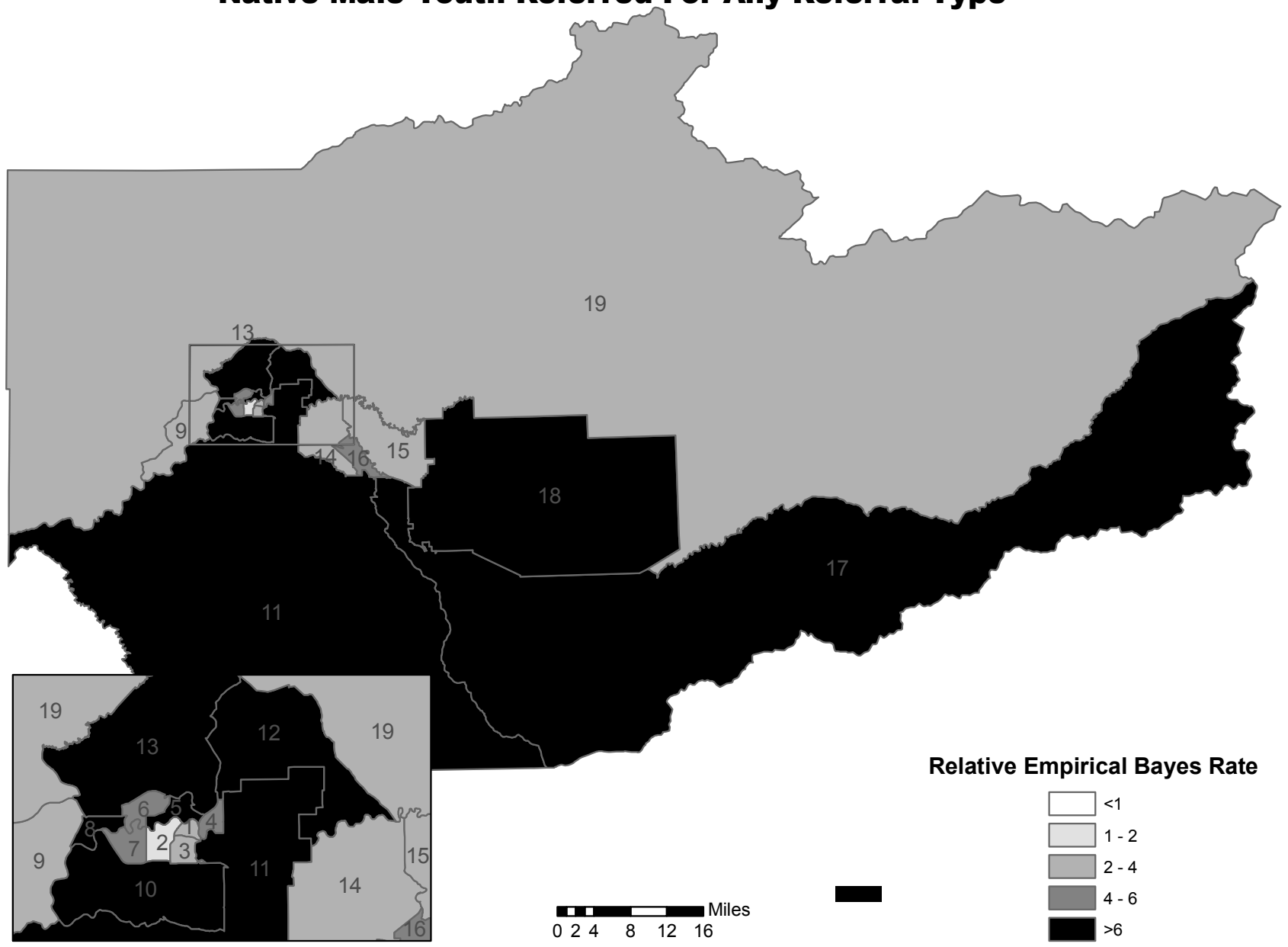


Figure 23. Relative EB Rate Indices By Census Tract - Native Male Youth Referred For a Crime Against a Person

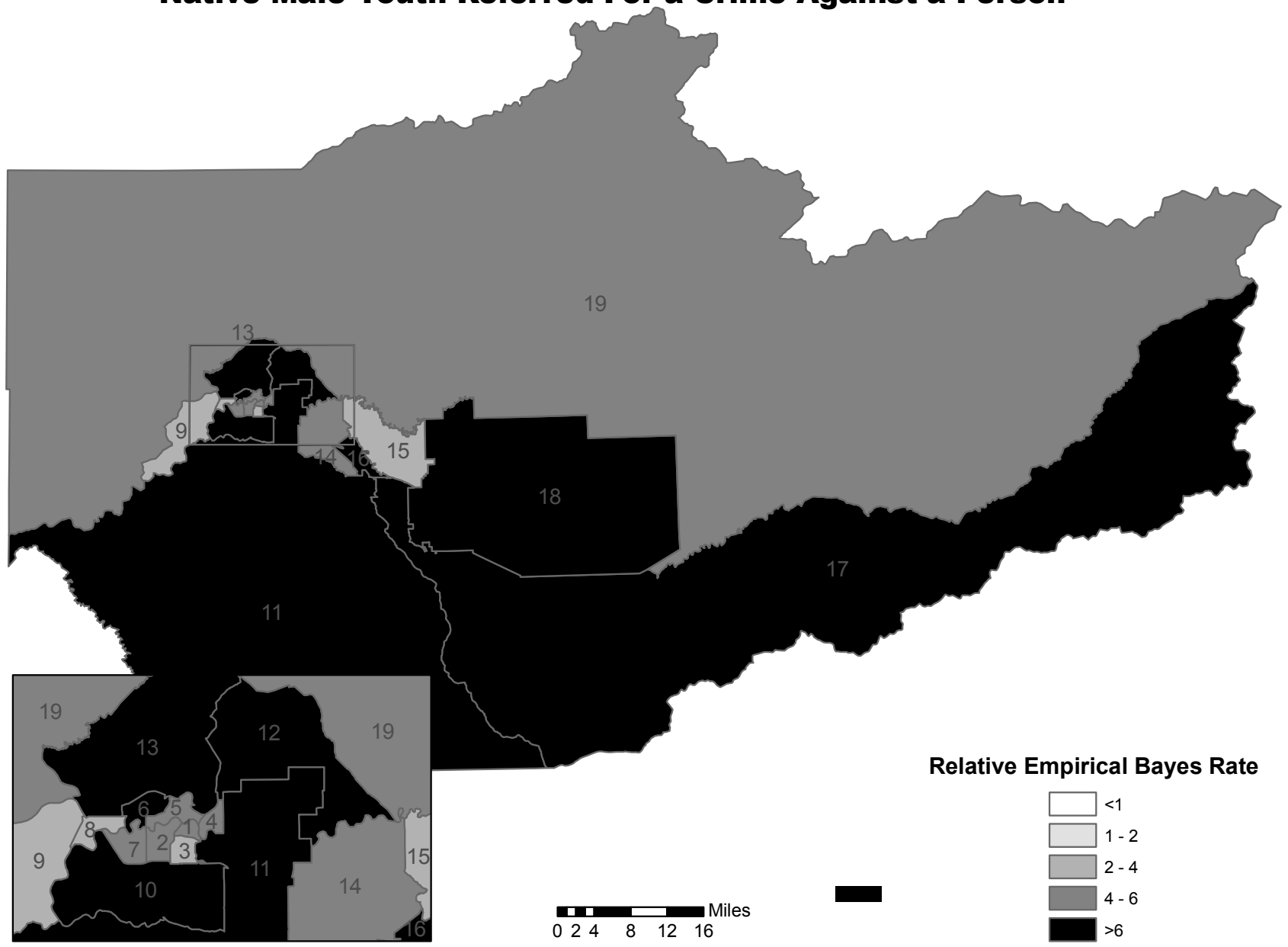


Figure 24. Relative EB Rate Indices By Census Tract - Native Male Youth Referred For A Crime Against Property

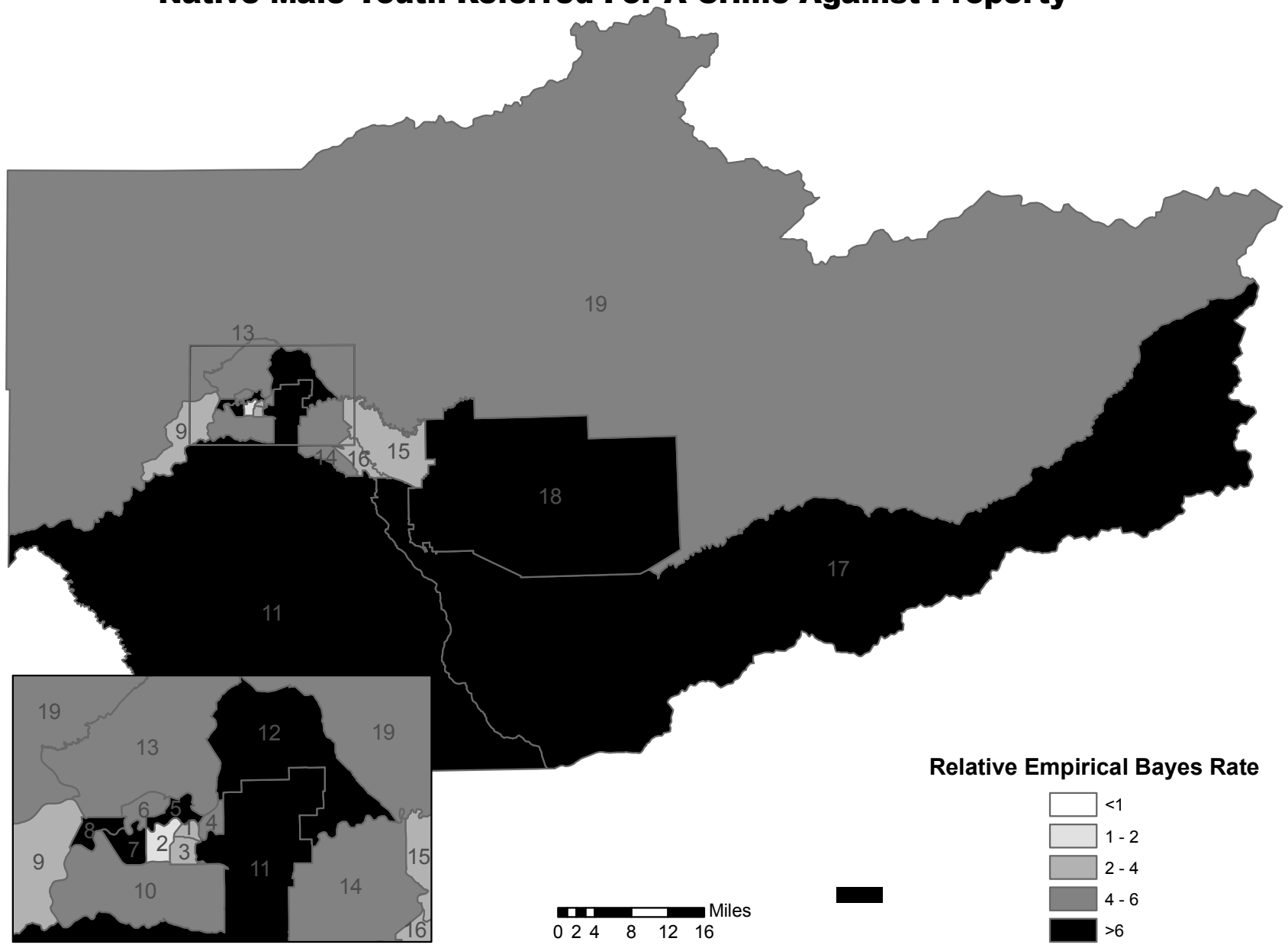


Figure 25. Relative EB Rate Indices By Census Tract - Native Male Youth Referred For Other Criminal Offense Types

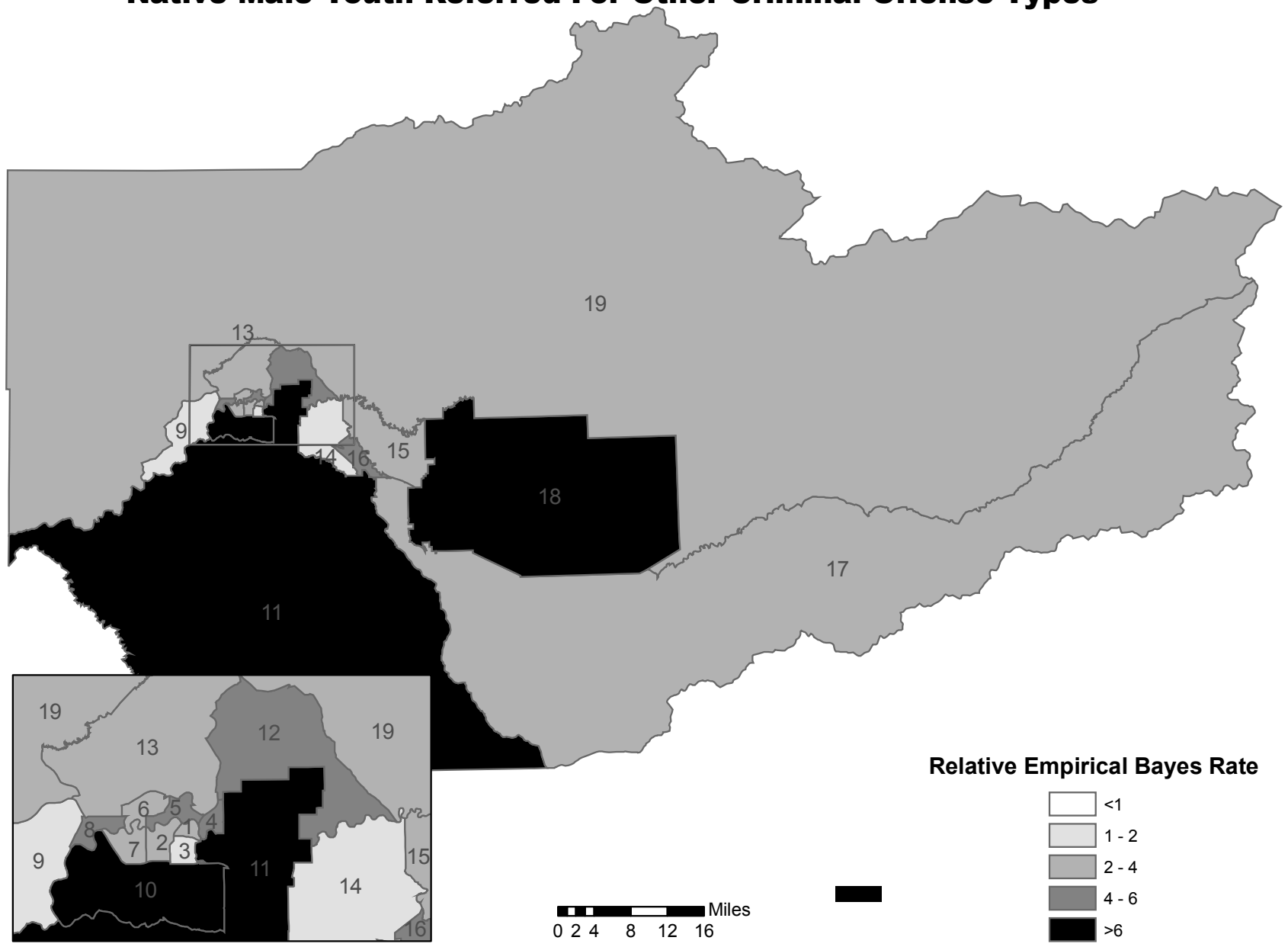


Figure 26. Relative EB Rate Indices By Census Tract - Native Male Youth Referred For A Probation or Conduct Violation

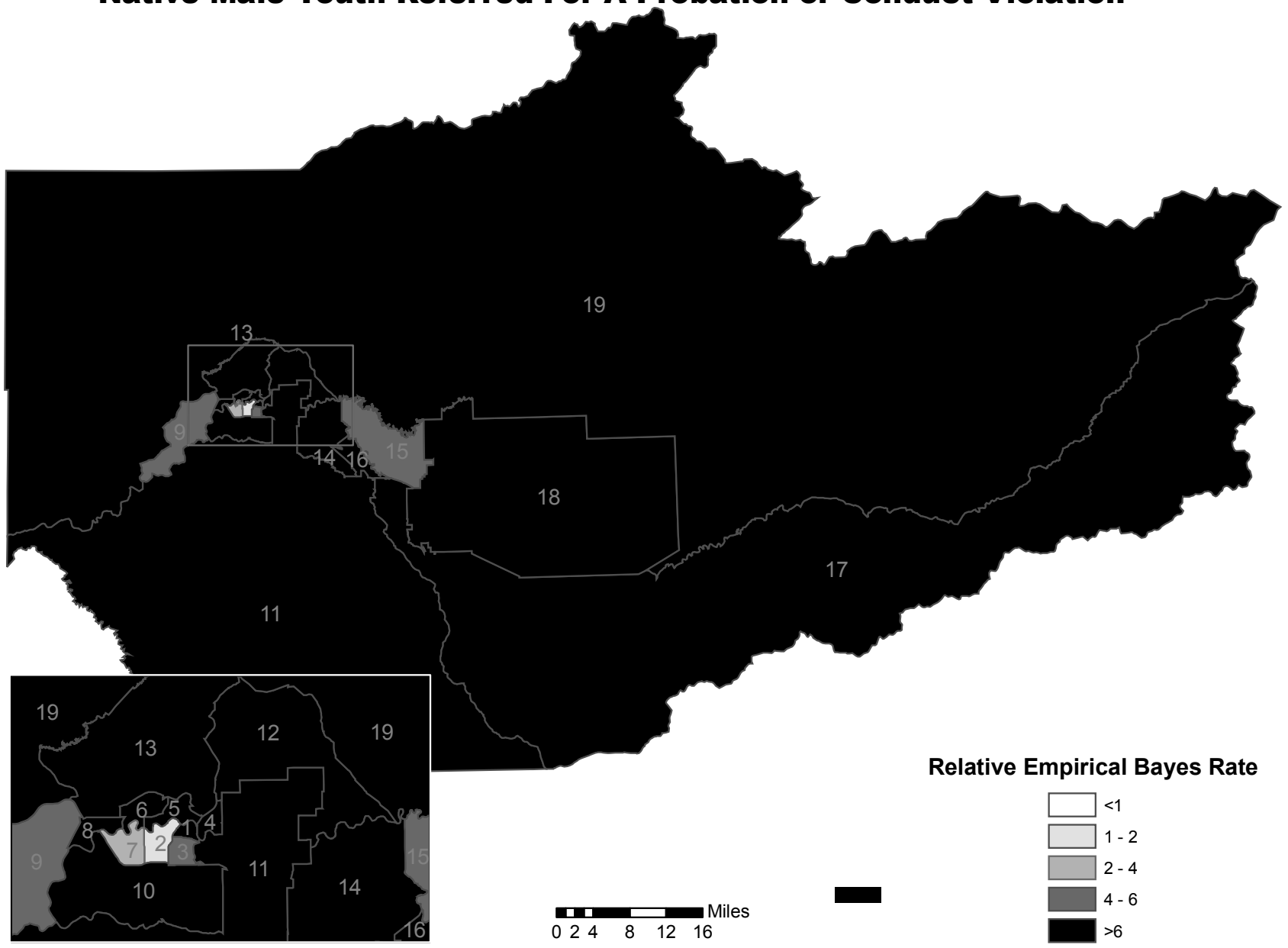


Figure 27. Relative EB Rate Indices By Census Tract - Native Female Youth Referred For Any Referral Type

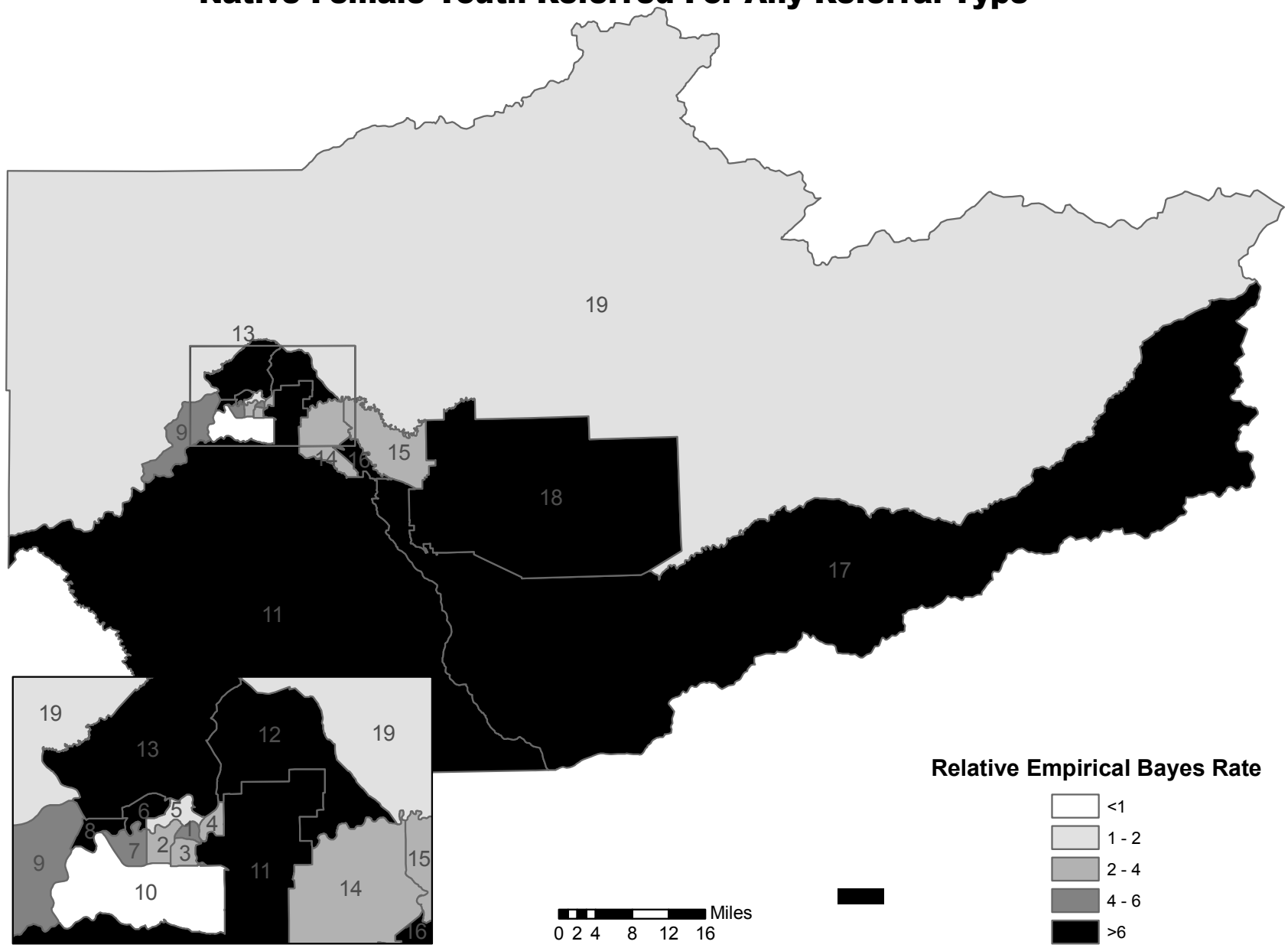


Figure 28. Relative EB Rate Indices By Census Tract - Native Female Youth Referred For a Crime Against a Person

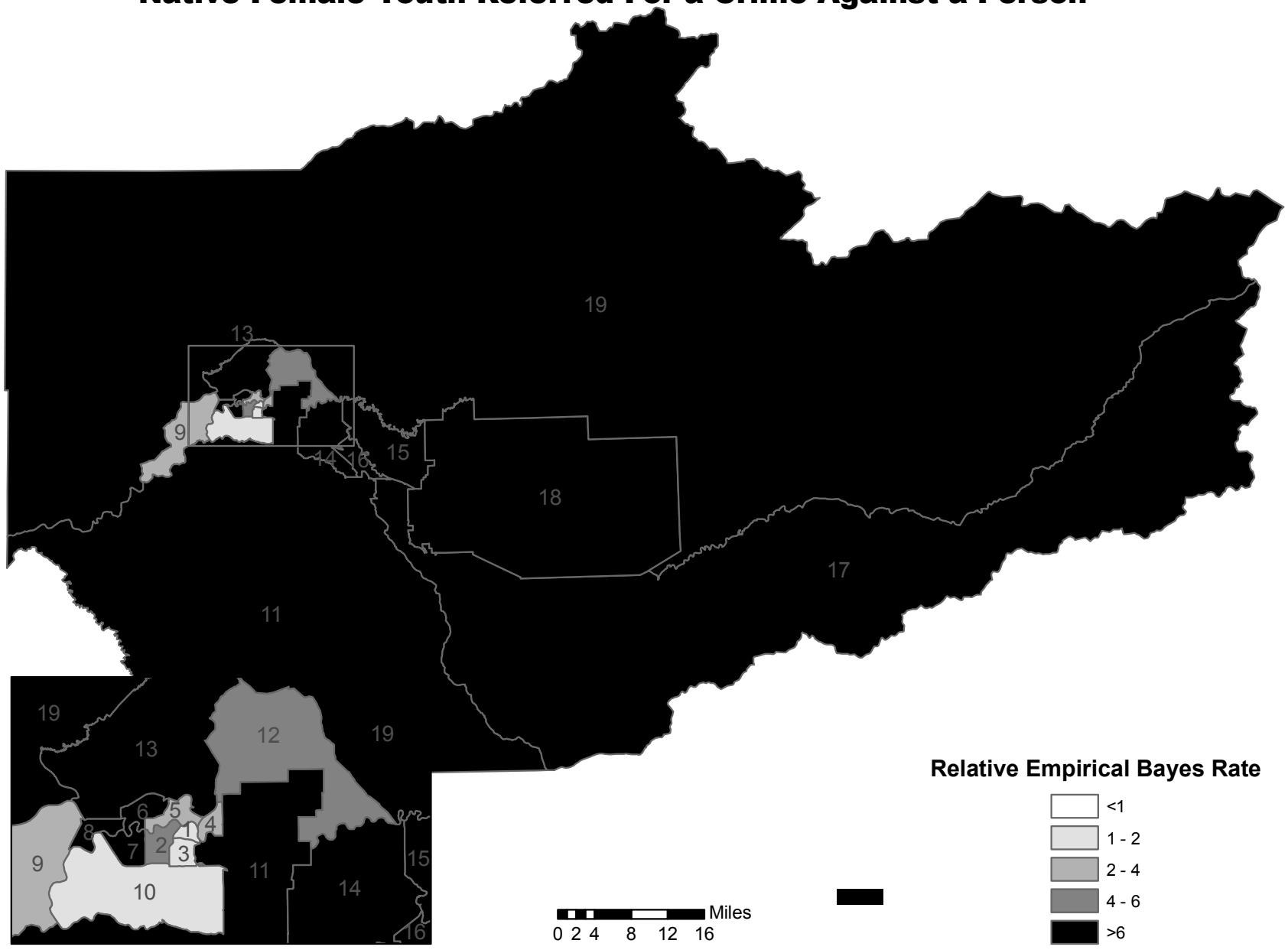


Figure 29. Relative EB Rate Indices By Census Tract - Native Female Youth Referred For A Crime Against Property

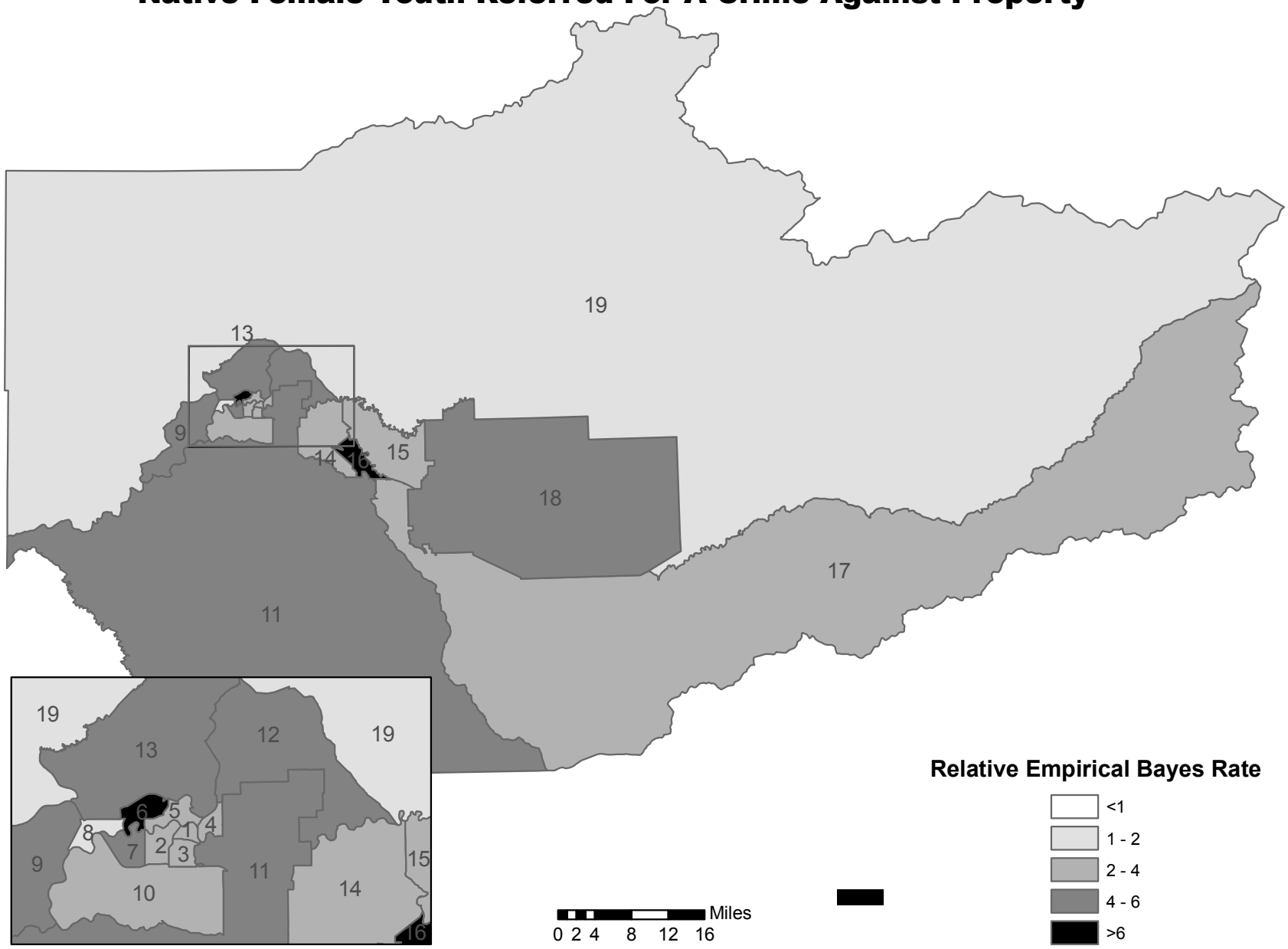


Figure 30. Relative EB Rate Indices By Census Tract - Native Female Youth Referred For Other Criminal Offense Types

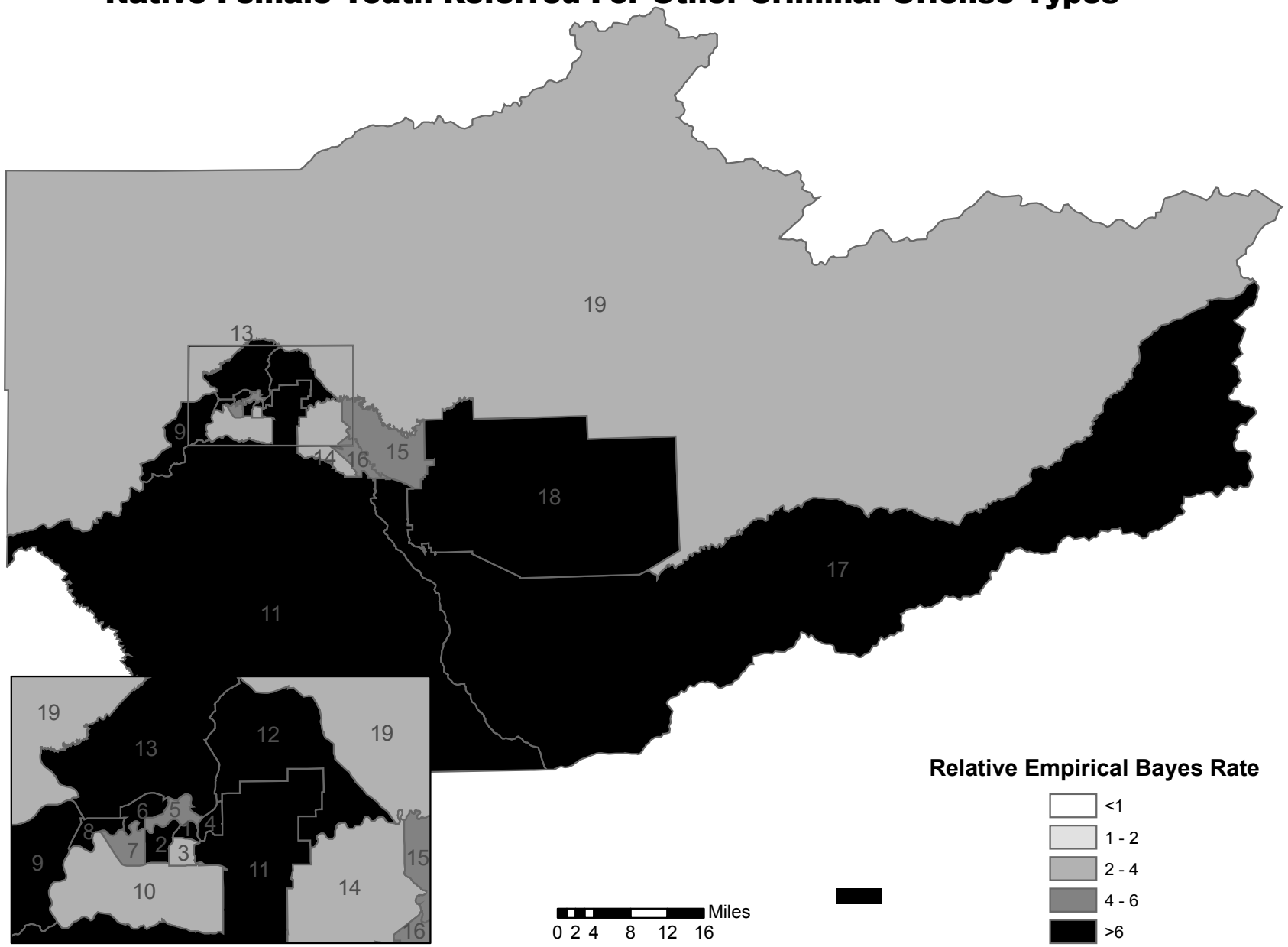


Figure 31. Relative EB Rate Indices By Census Tract - Native Female Youth Referred For A Probation or Conduct Violation

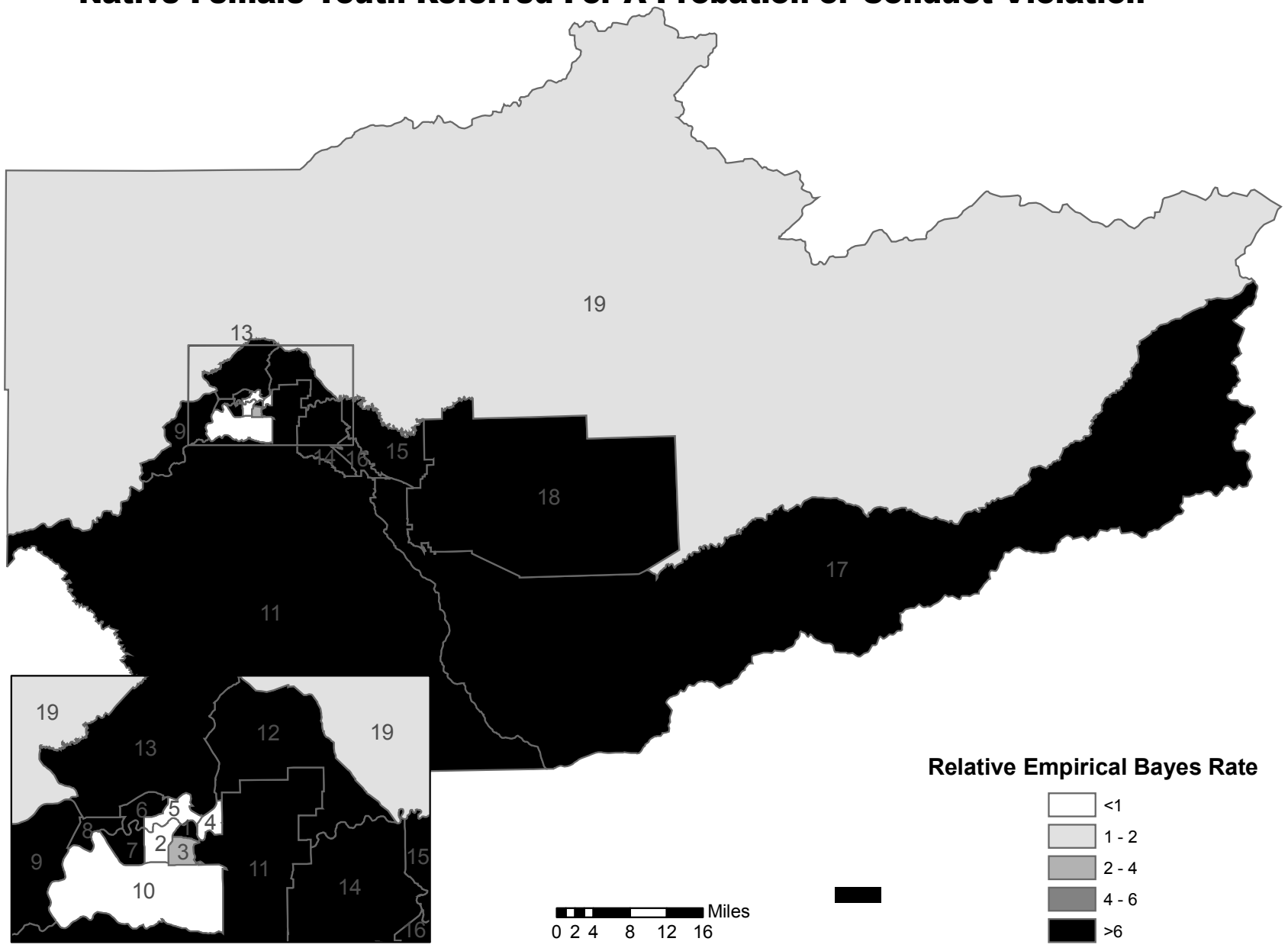


Figure 32. Relative EB Rate Indices By Census Tract - Black Youth Referred For Any Referral Type

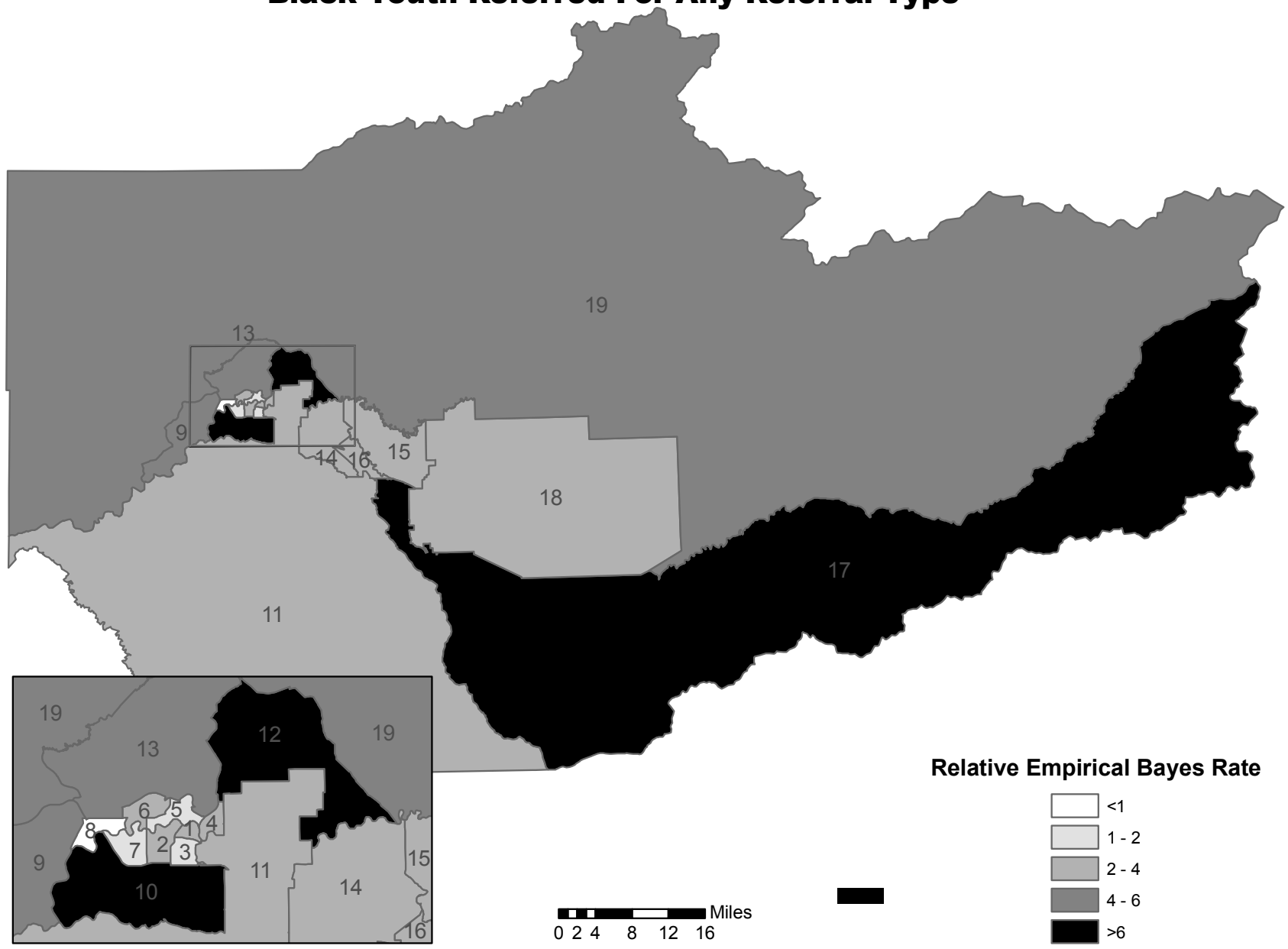


Figure 33. Relative EB Rate Indices By Census Tract - Black Youth Referred For a Crime Against a Person

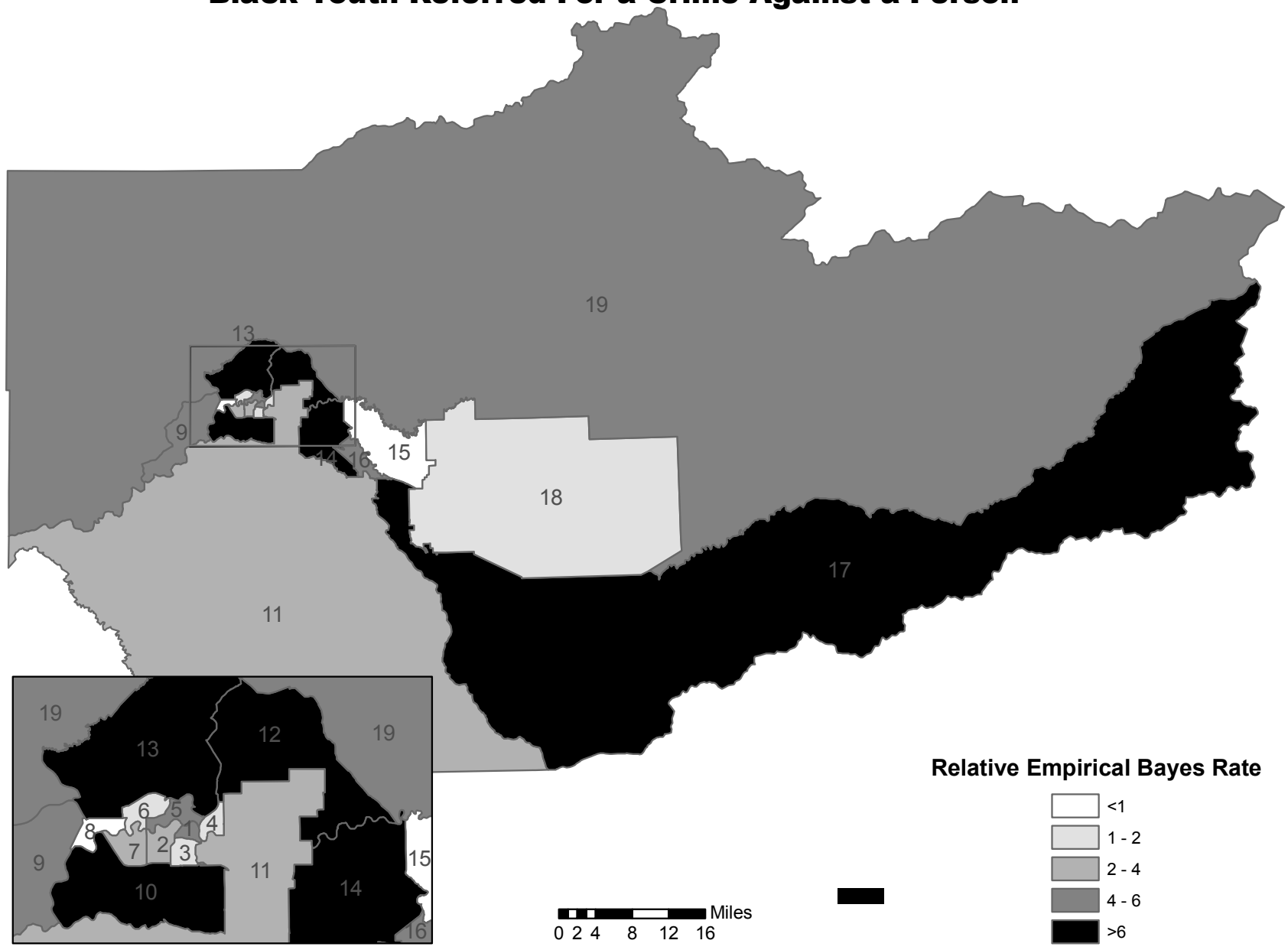


Figure 34. Relative EB Rate Indices By Census Tract - Black Youth Referred For A Crime Against Property

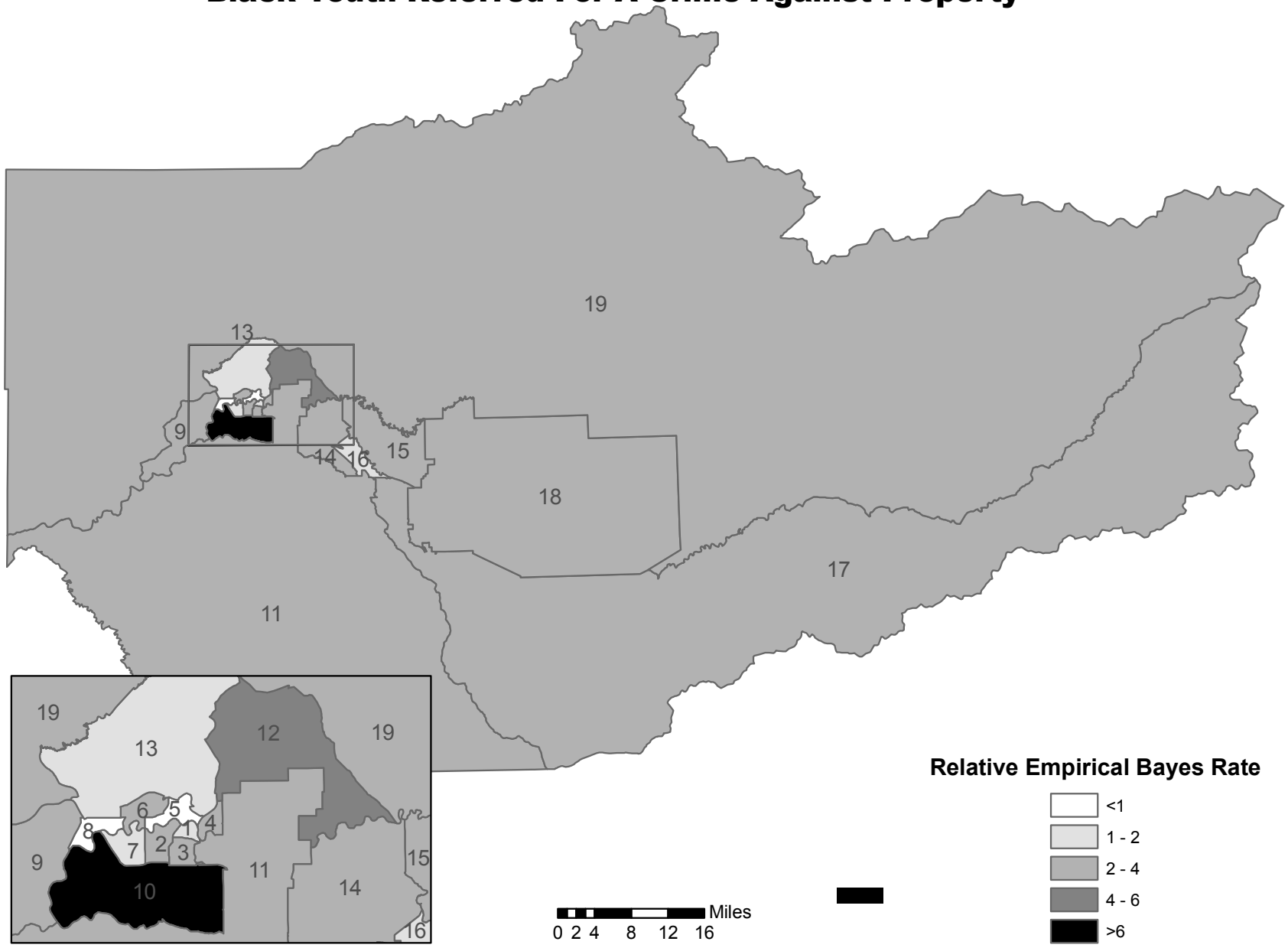


Figure 35. Relative EB Rate Indices By Census Tract - Black Youth Referred For Other Criminal Offense Types

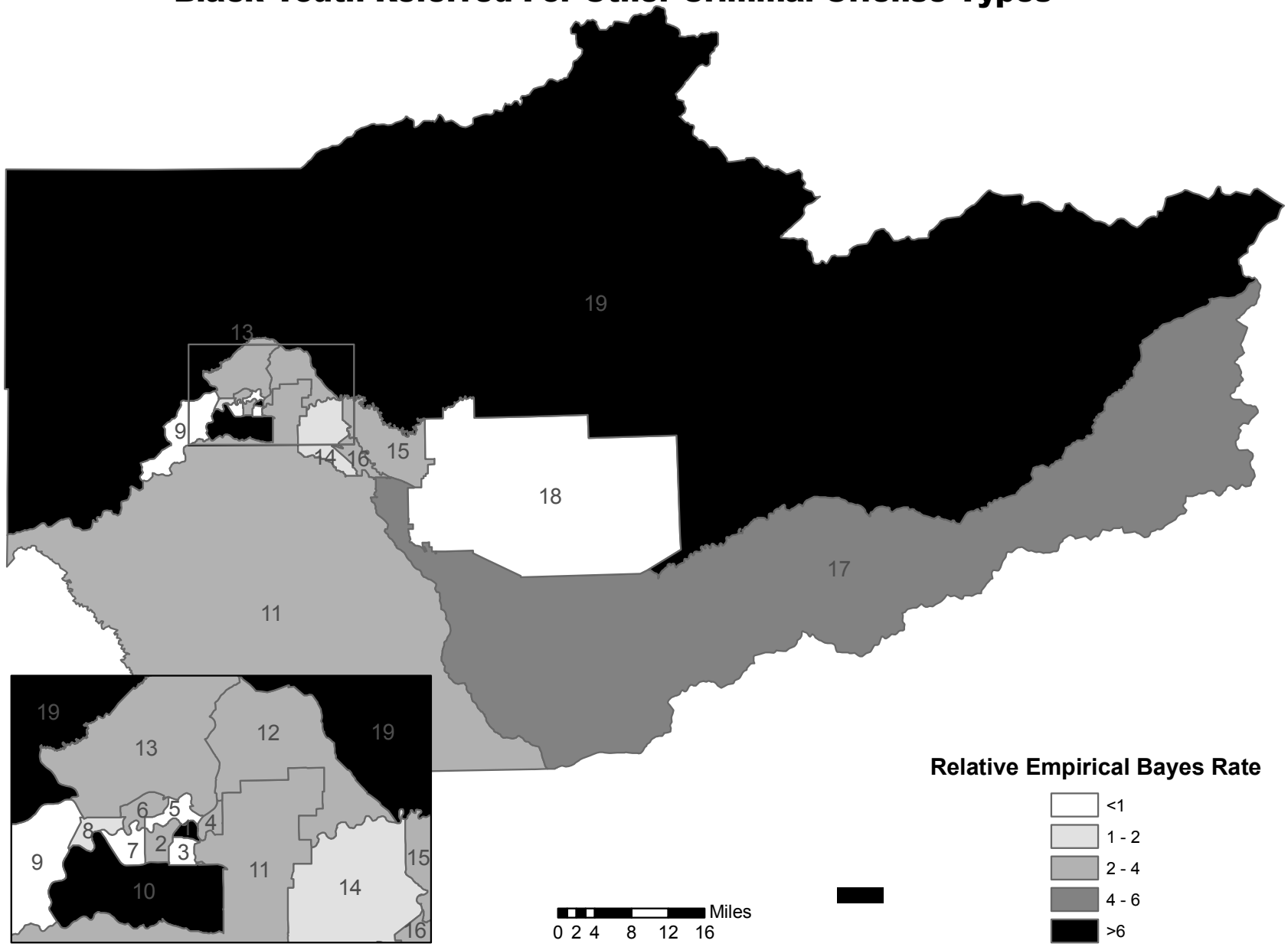


Figure 36. Relative EB Rate Indices By Census Tract - Black Youth Referred For A Probation or Conduct Violation

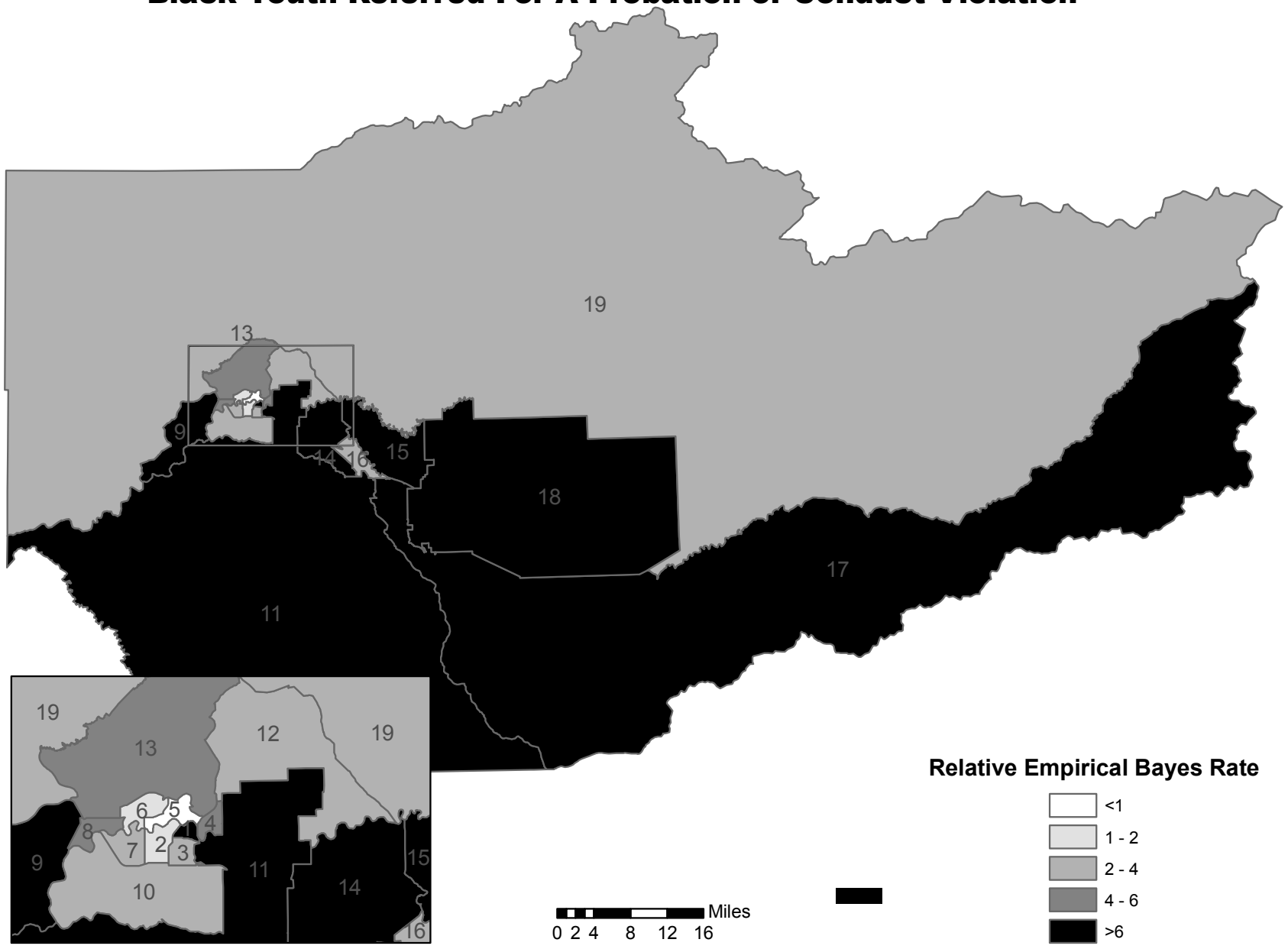


Figure 37. Relative EB Rate Indices By Census Tract - Black Male Youth Referred For Any Referral Type

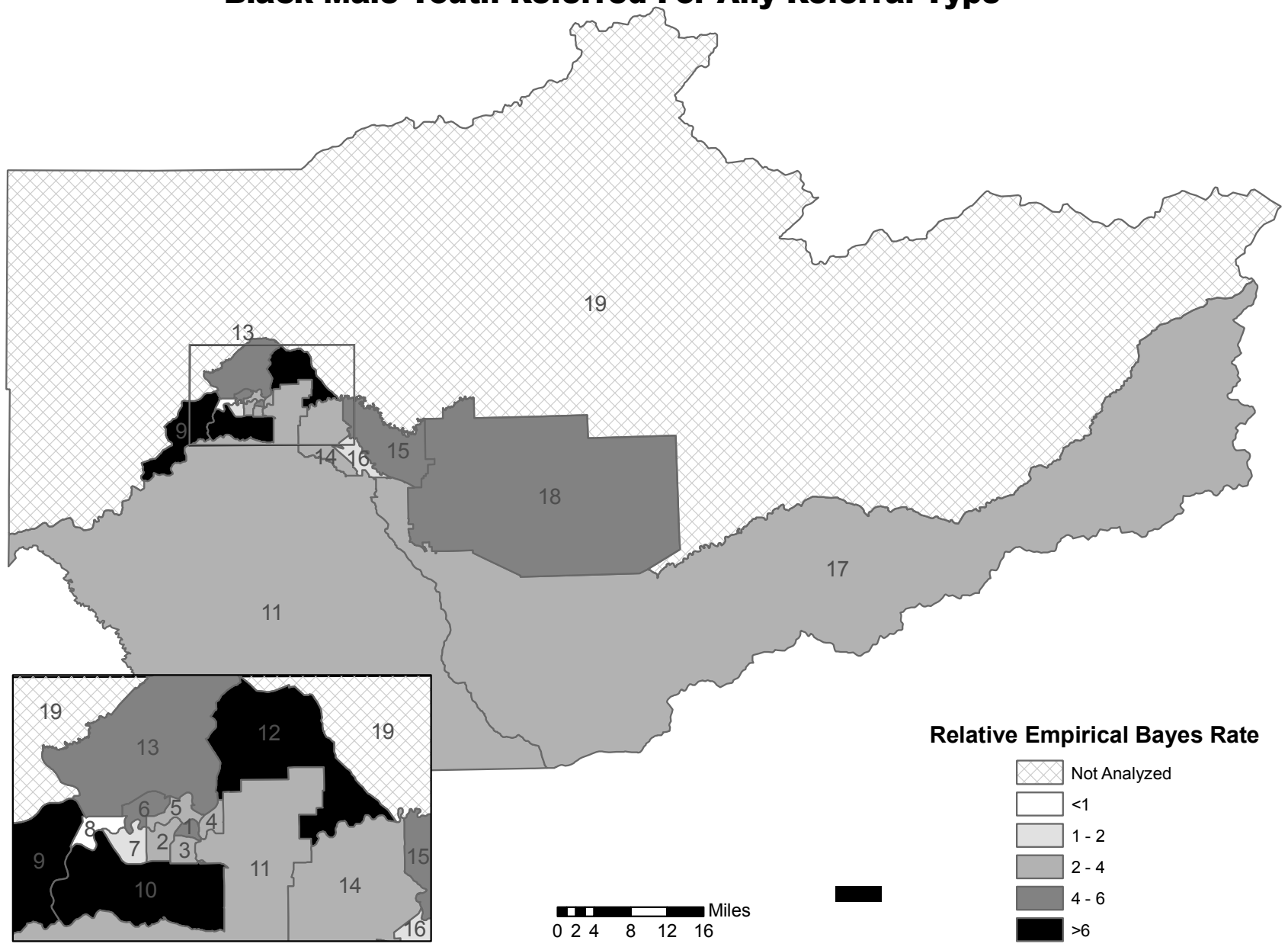


Figure 38. Relative EB Rate Indices By Census Tract - Black Male Youth Referred For a Crime Against a Person

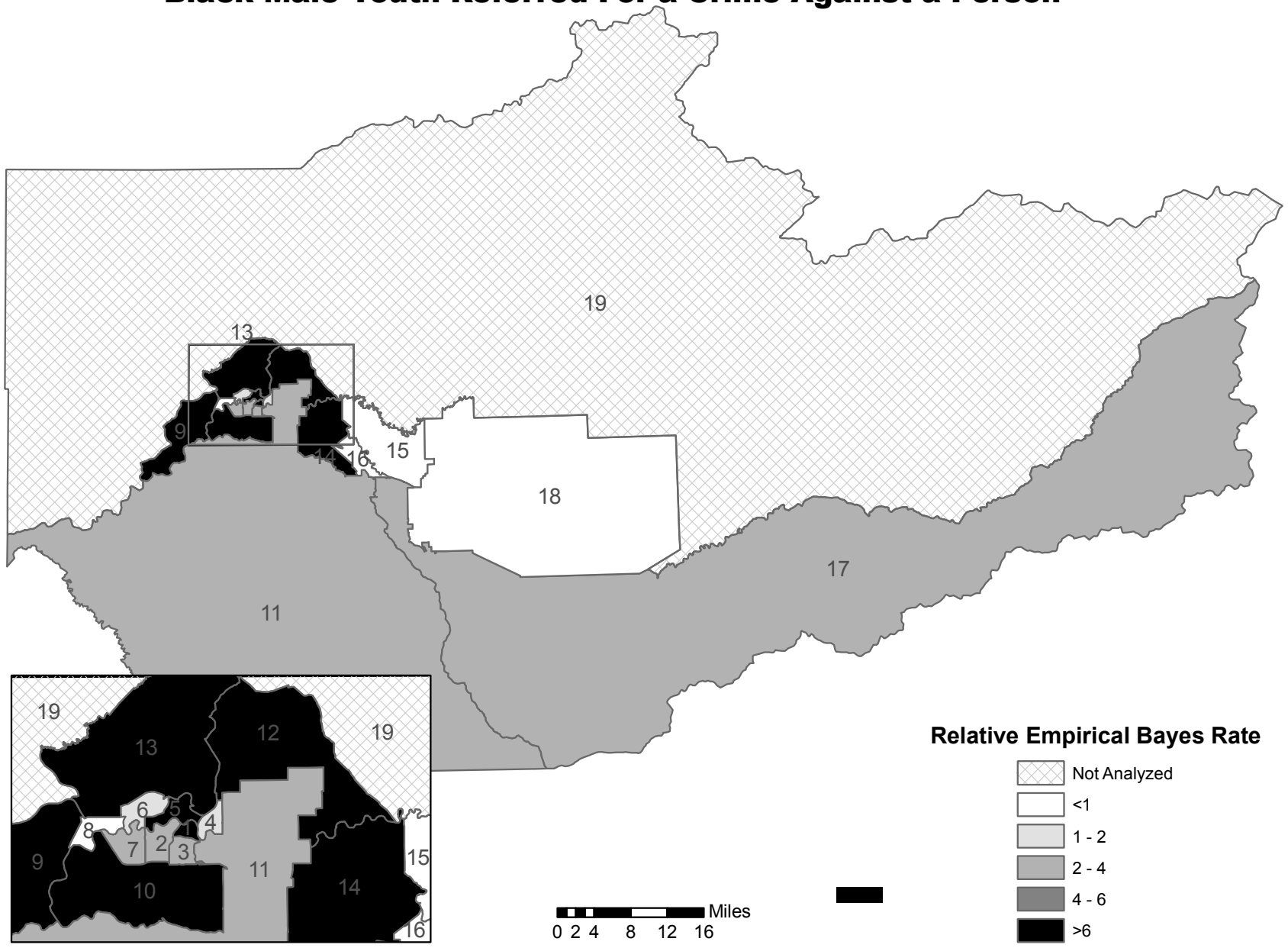


Figure 39. Relative EB Rate Indices By Census Tract - Black Male Youth Referred For A Crime Against Property

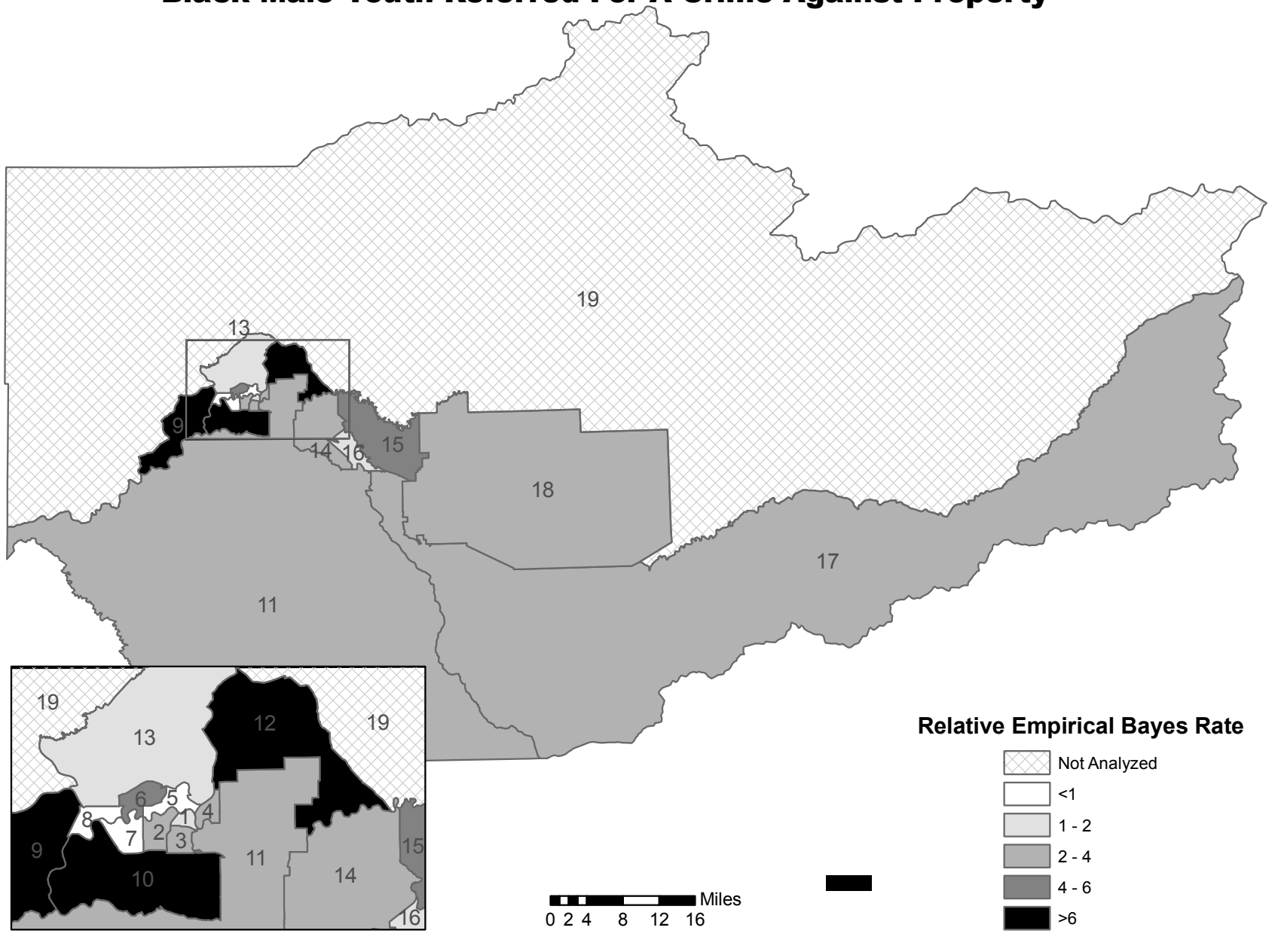


Figure 40. Relative EB Rate Indices By Census Tract - Black Male Youth Referred For Other Criminal Offense Types

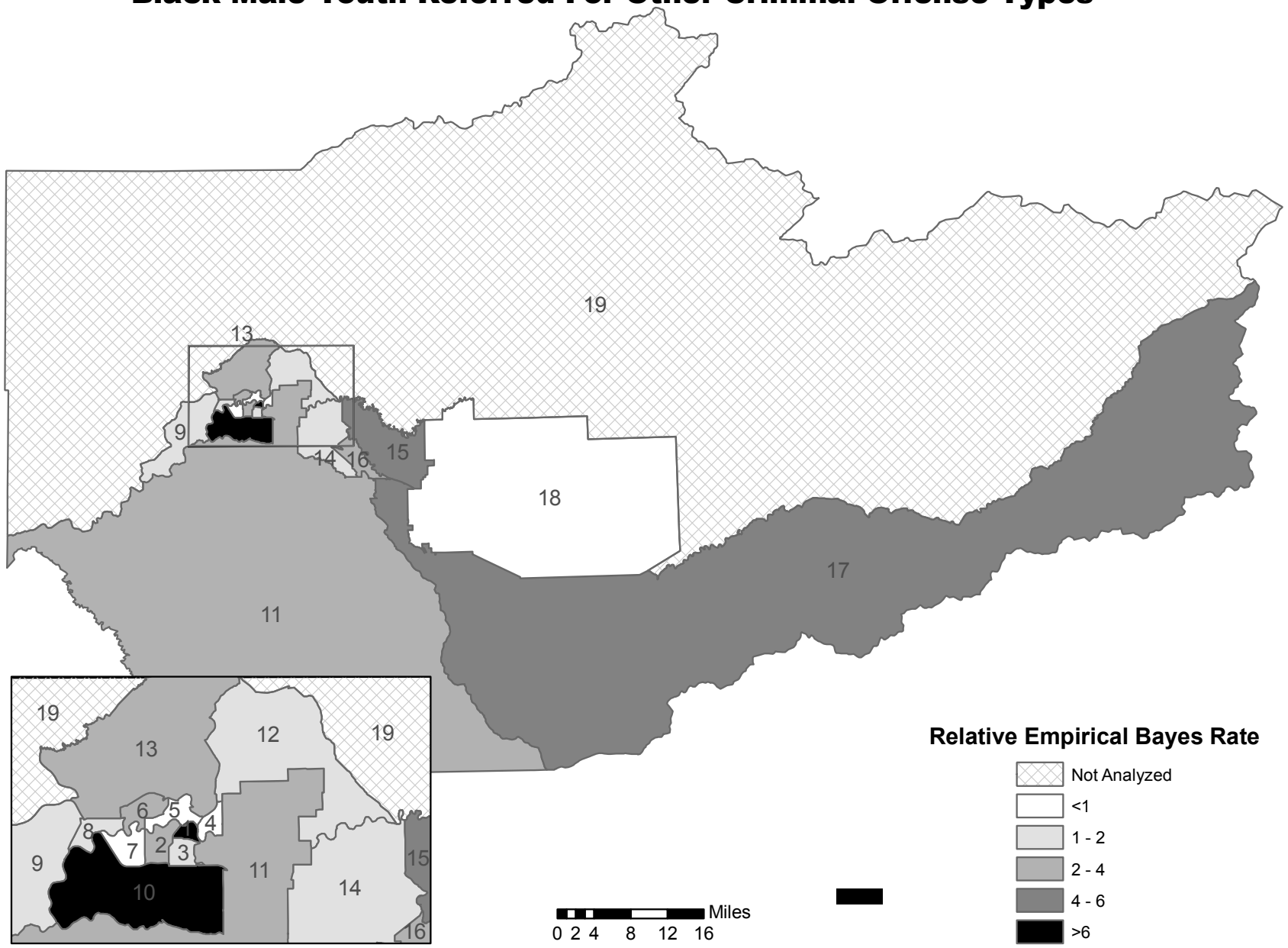


Figure 41. Relative EB Rate Indices By Census Tract - Black Male Youth Referred For A Probation or Conduct Violation

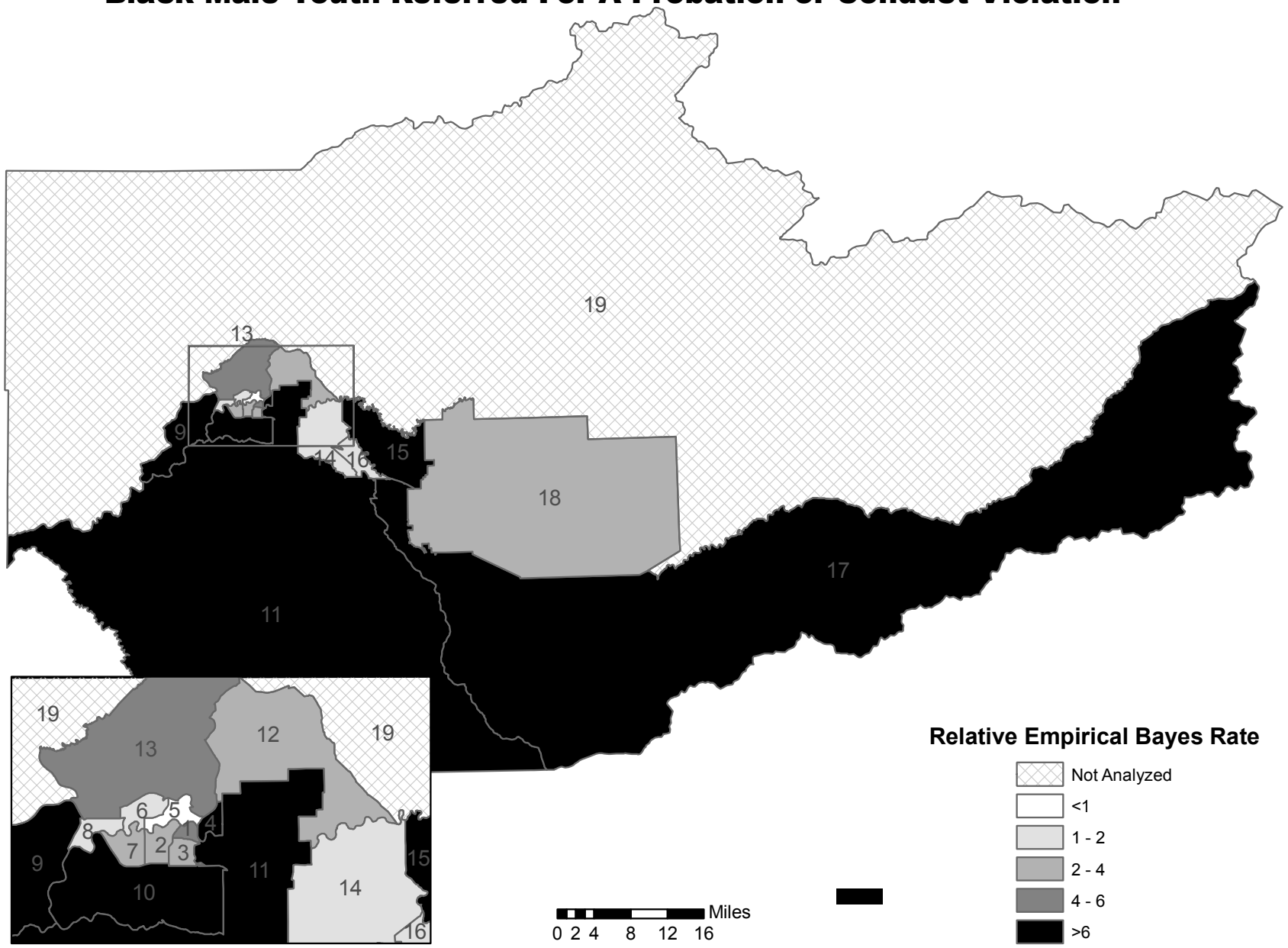


Figure 42. Relative EB Rate Indices By Census Tract - Black Female Youth Referred For Any Referral Type

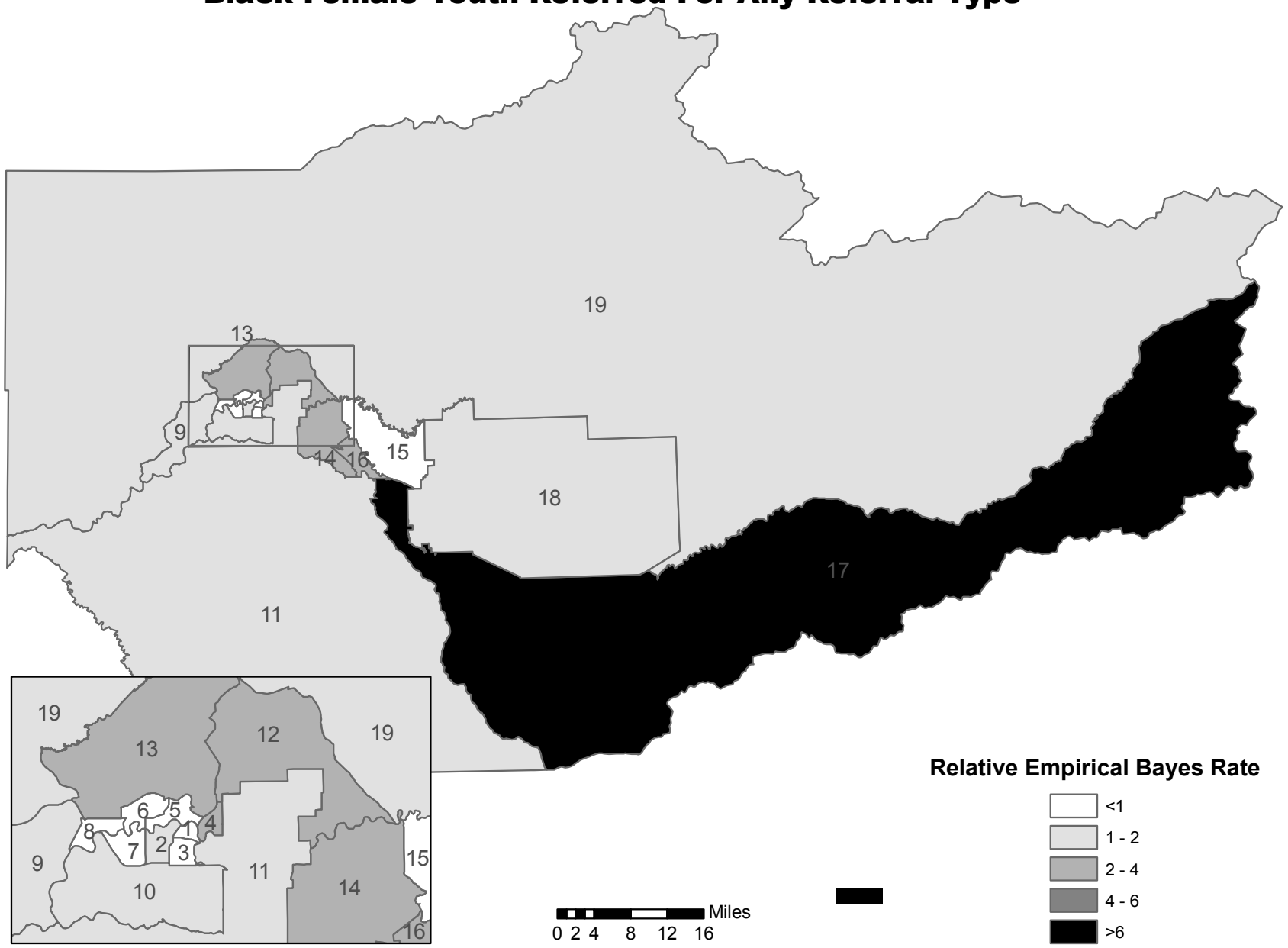


Figure 43. Relative EB Rate Indices By Census Tract - Black Female Youth Referred For a Crime Against a Person

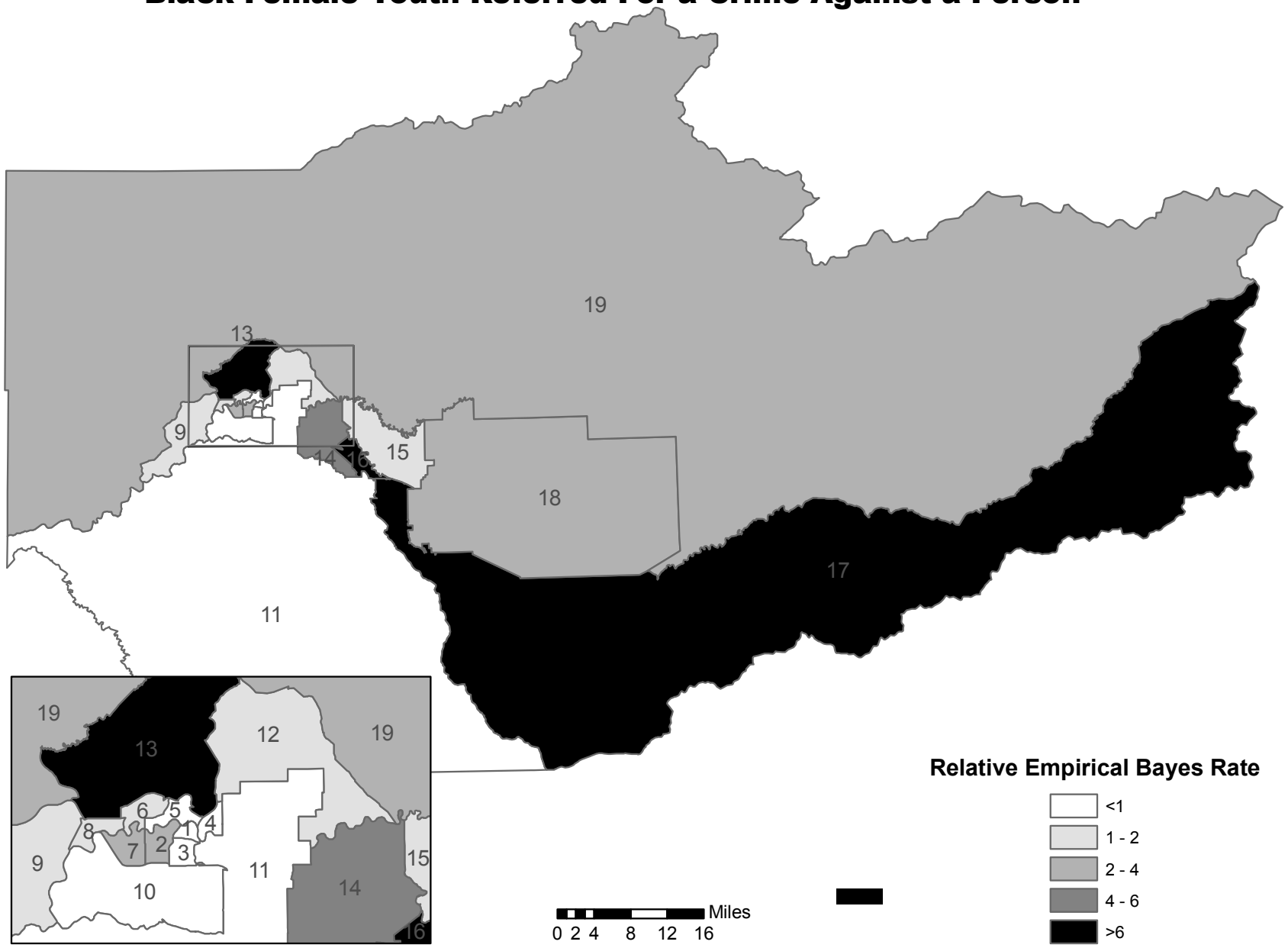


Figure 44. Relative EB Rate Indices By Census Tract - Black Female Youth Referred For A Crime Against Property

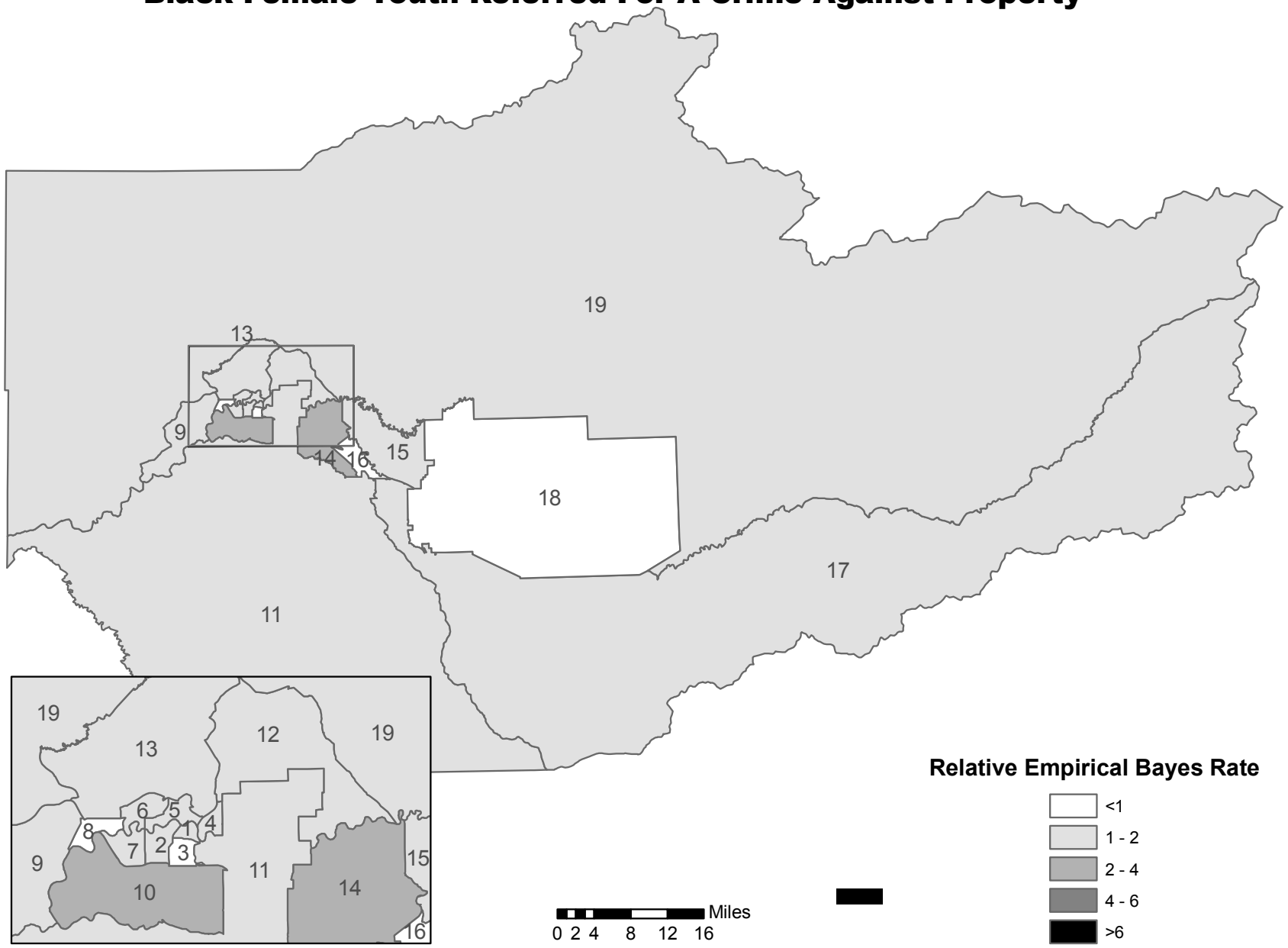


Figure 45. Relative EB Rate Indices By Census Tract - Black Female Youth Referred For Other Criminal Offense Types

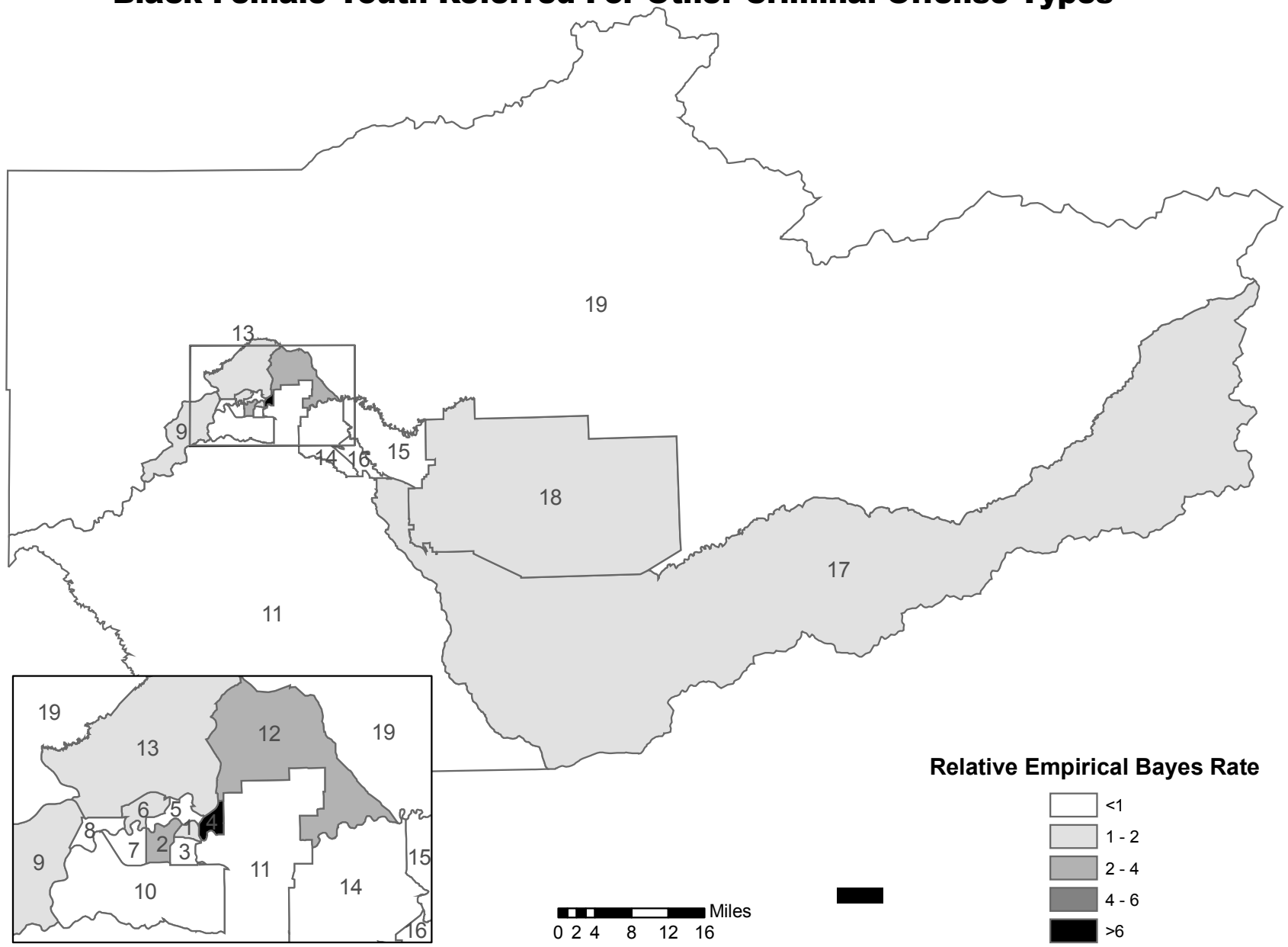


Figure 46. Relative EB Rate Indices By Census Tract - Black Female Youth Referred For A Probation or Conduct Violation

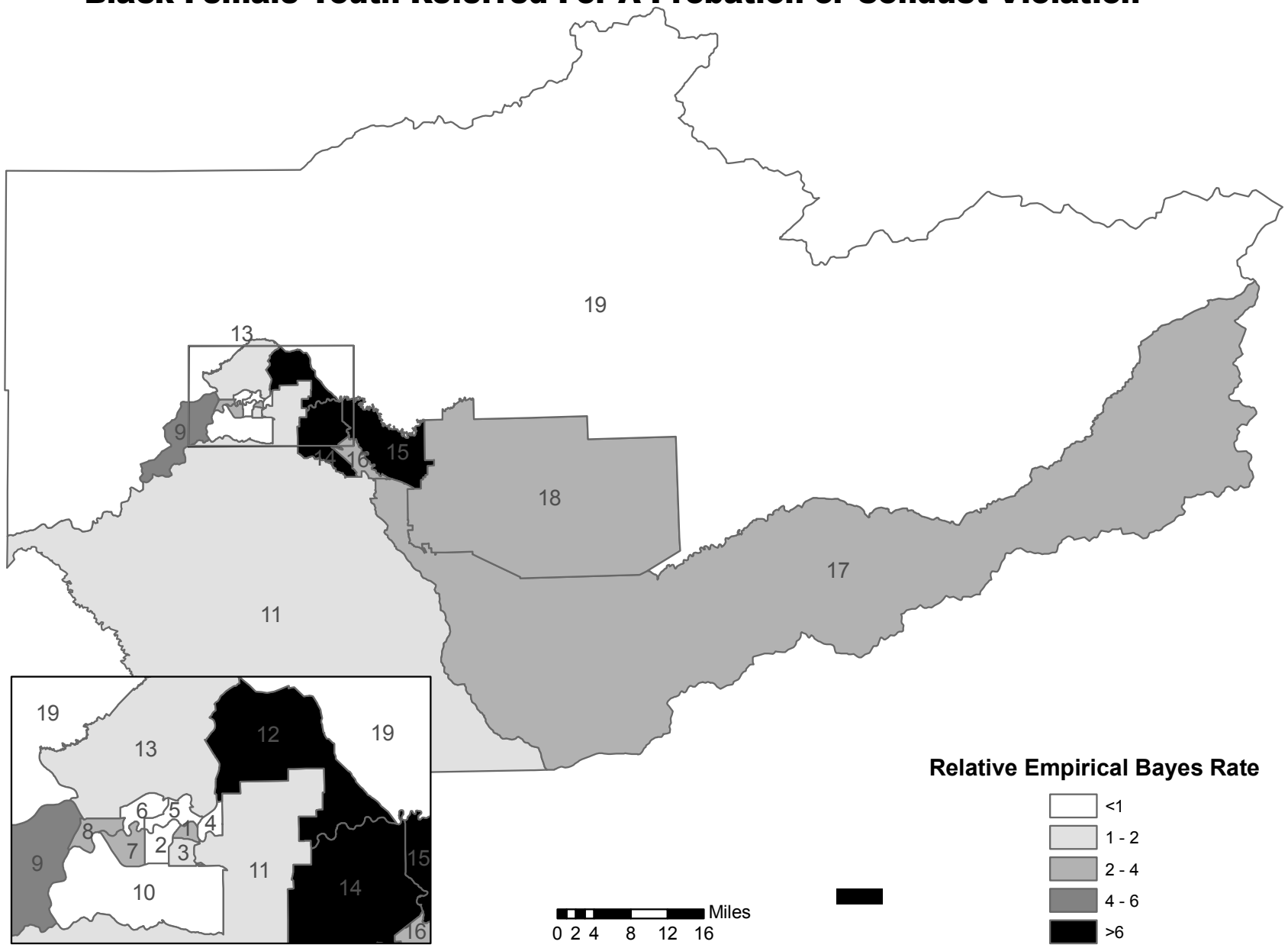


Figure 47. Empirical Bayes Rate of Referral By Census Tract - White Youth Referred For Any Referral Type

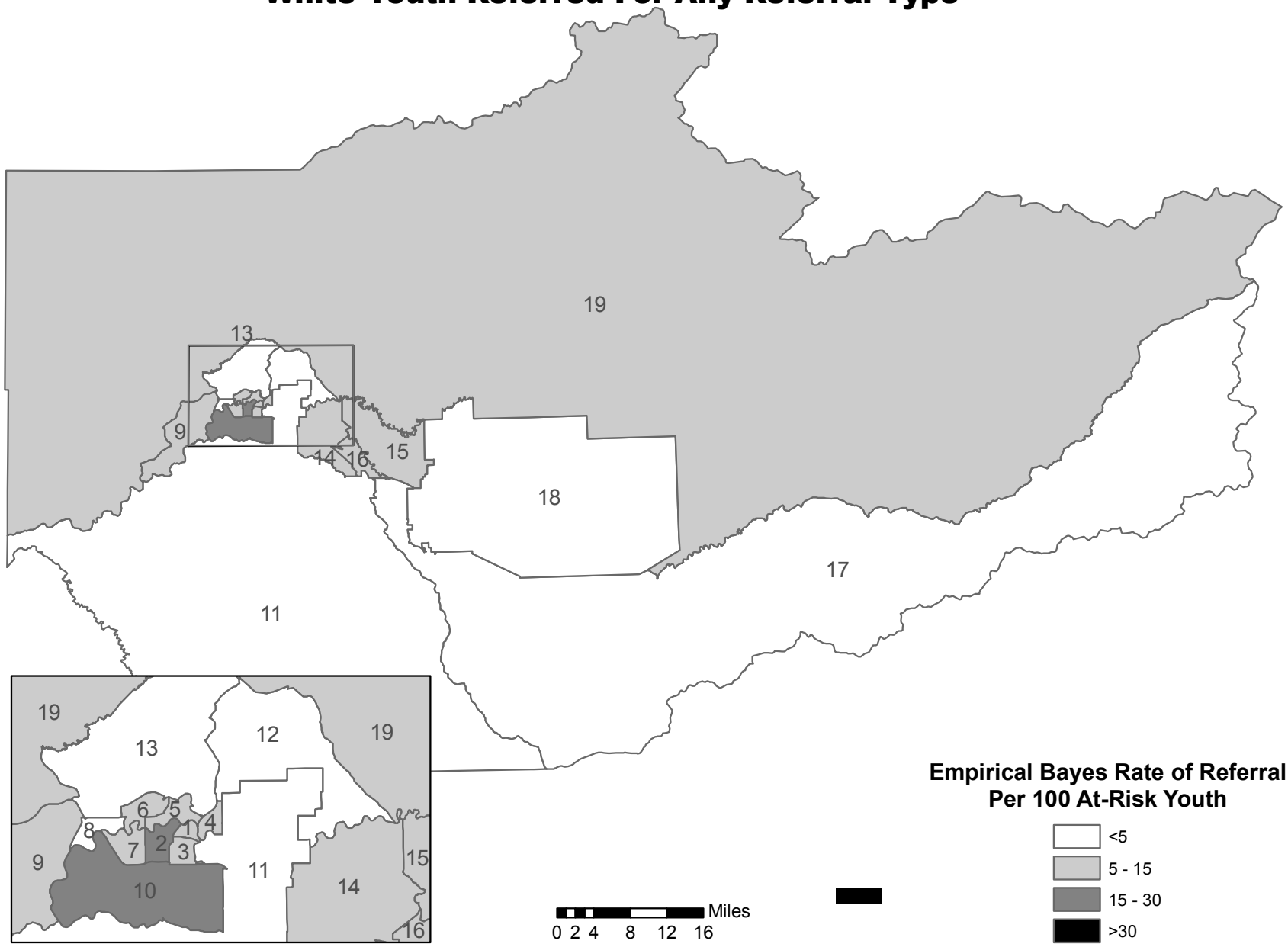


Figure 48. Empirical Bayes Rate of Referral By Census Tract - White Youth Referred For A Crime Against A Person

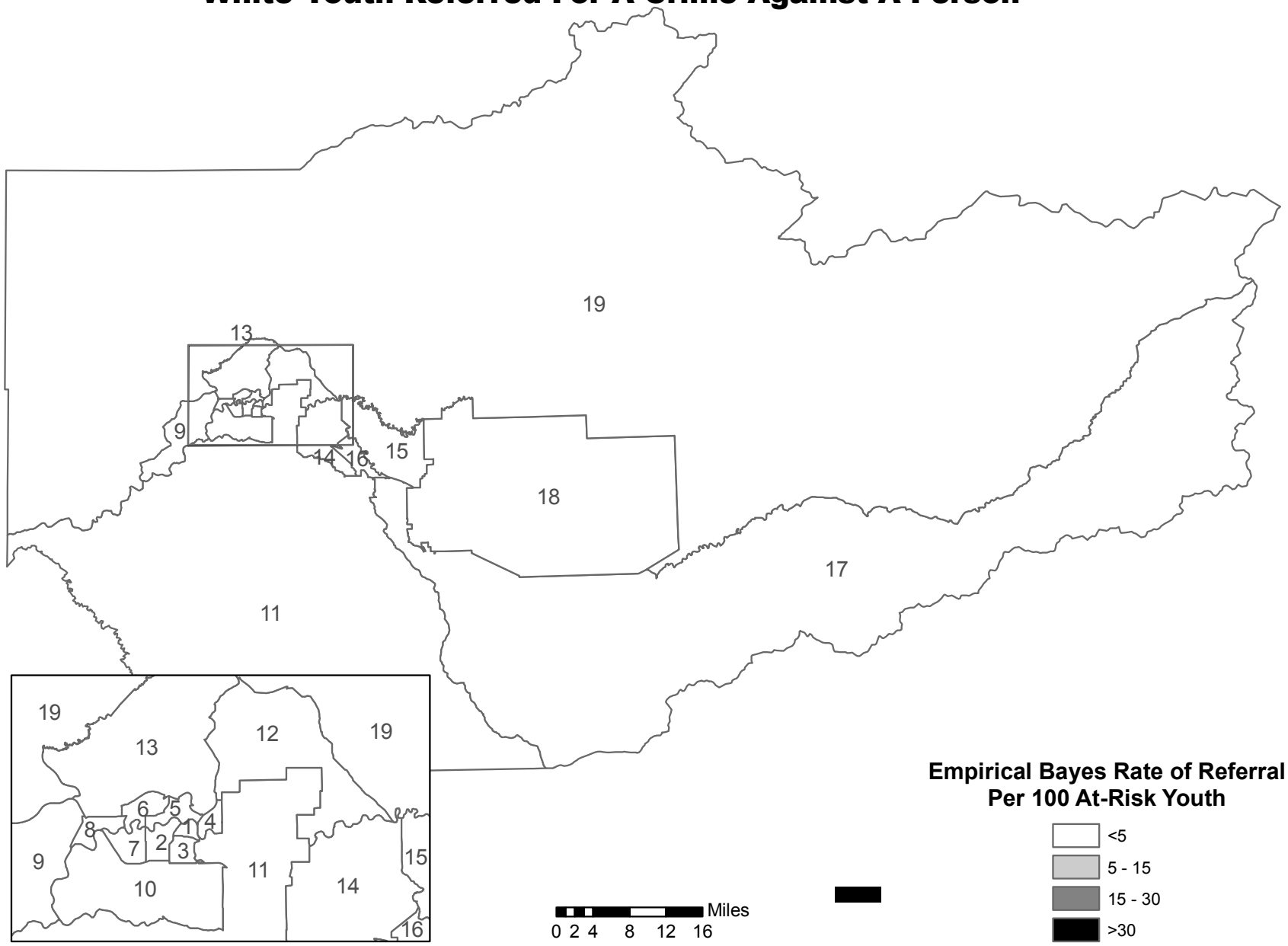


Figure 49. Empirical Bayes Rate of Referral By Census Tract - White Youth Referred For A Crime Against Property

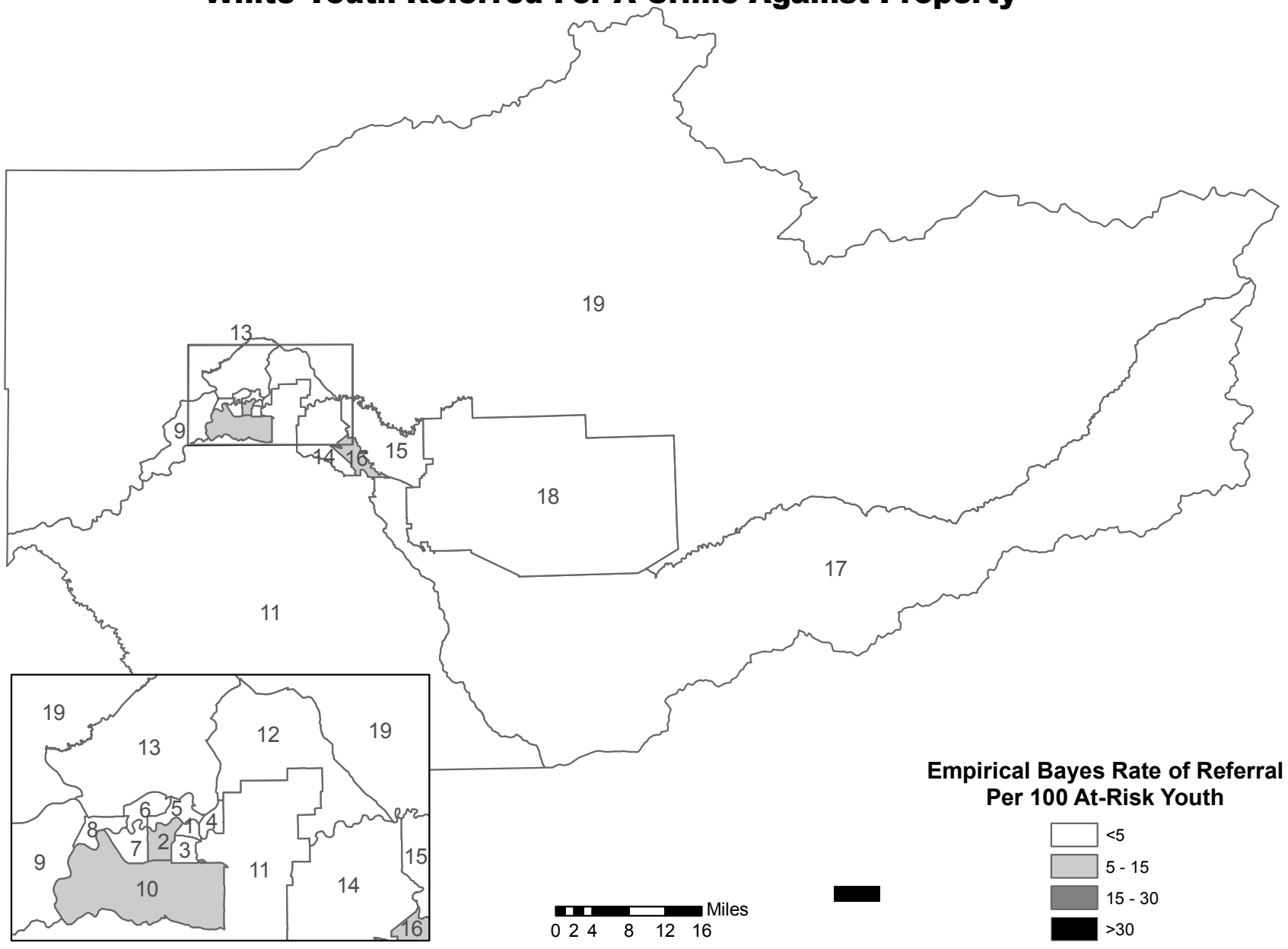


Figure 50. Empirical Bayes Rate of Referral By Census Tract - White Youth Referred For Other Criminal Offense Types

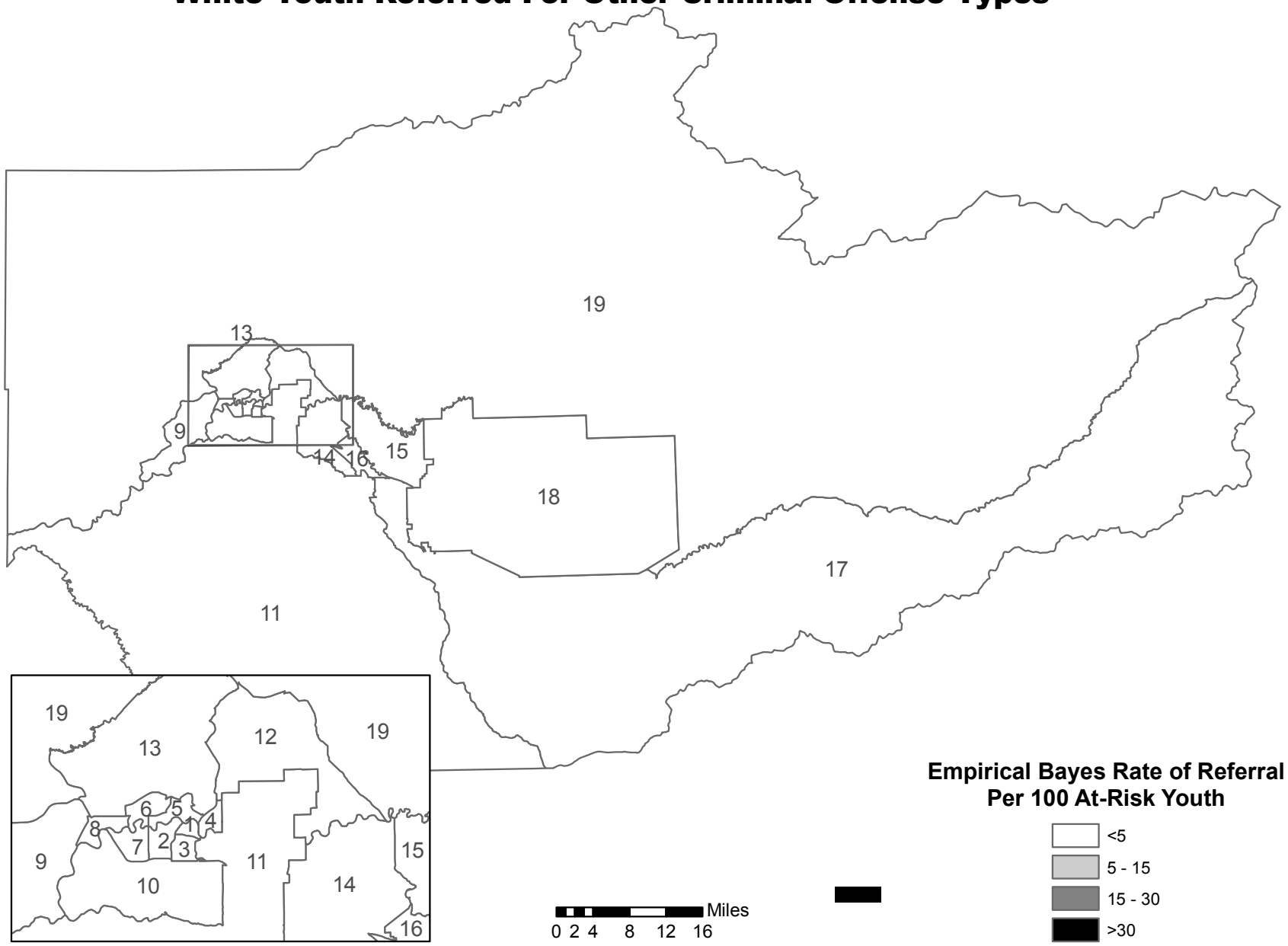


Figure 51. Empirical Bayes Rate of Referral By Census Tract - White Youth Referred For A Probation or Conduct Violation

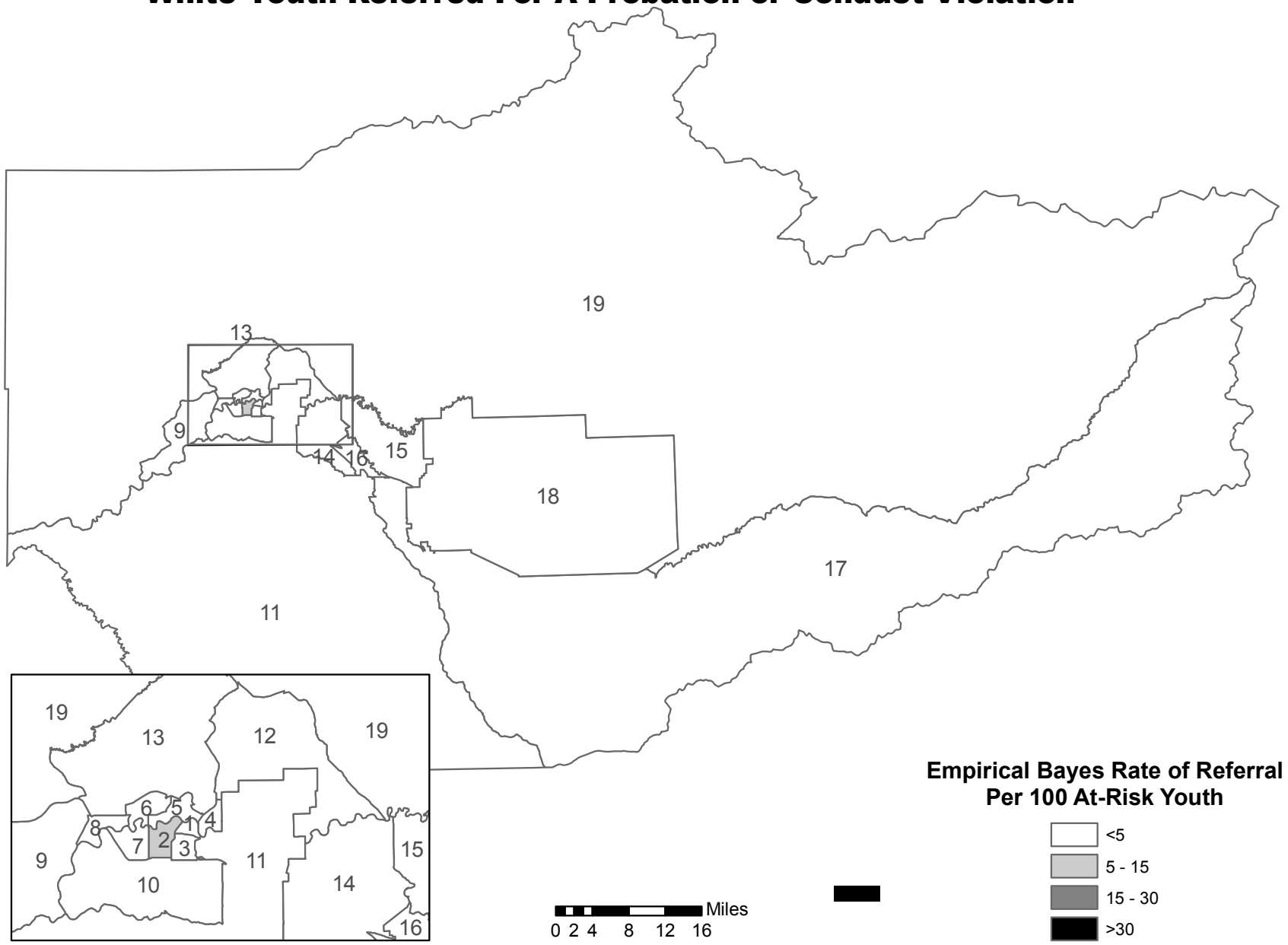


Figure 52. Empirical Bayes Rate of Referral By Census Tract - White Male Youth Referred For Any Referral Type

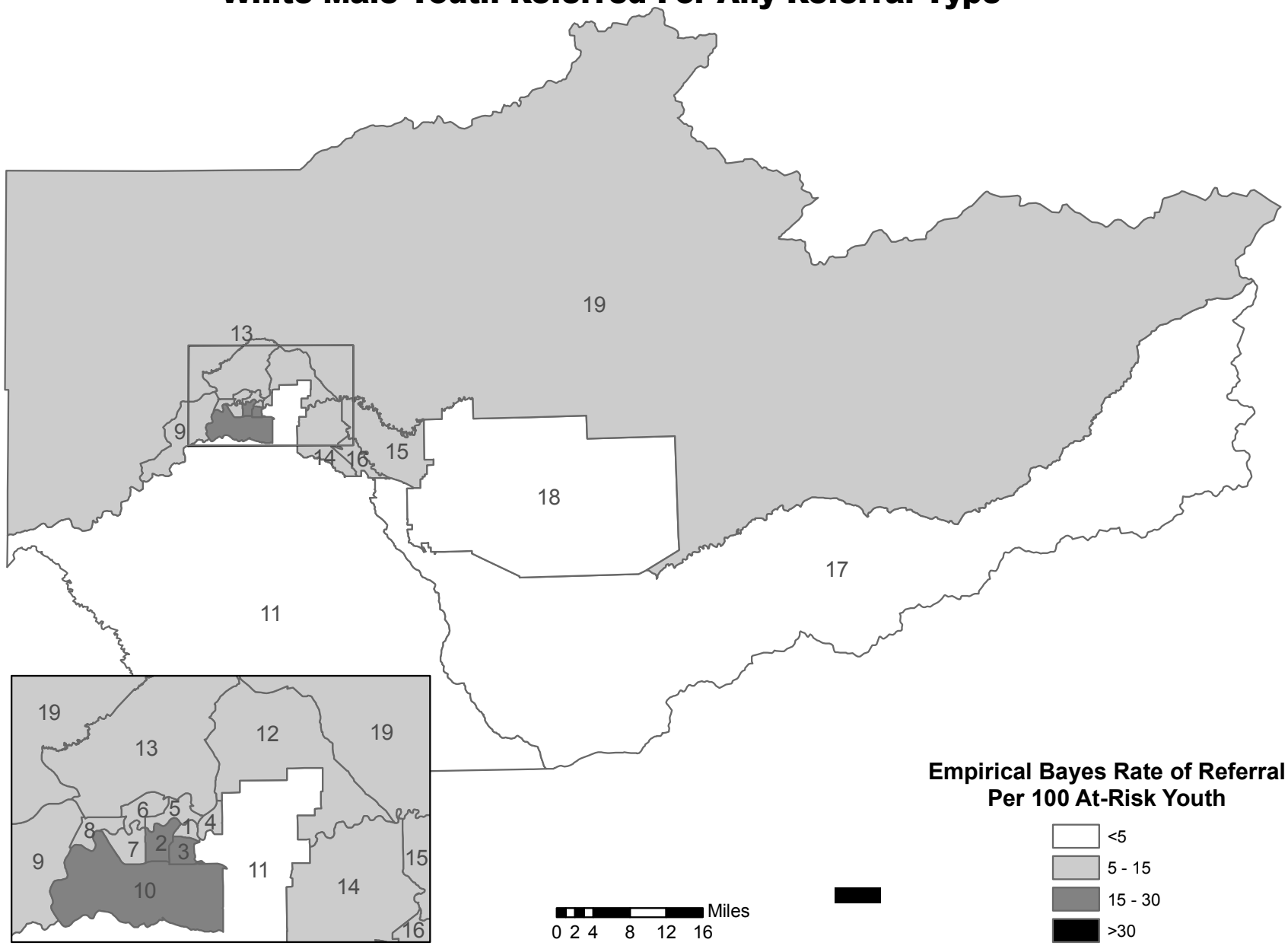


Figure 53. Empirical Bayes Rate of Referral By Census Tract - White Male Youth Referred For A Crime Against A Person

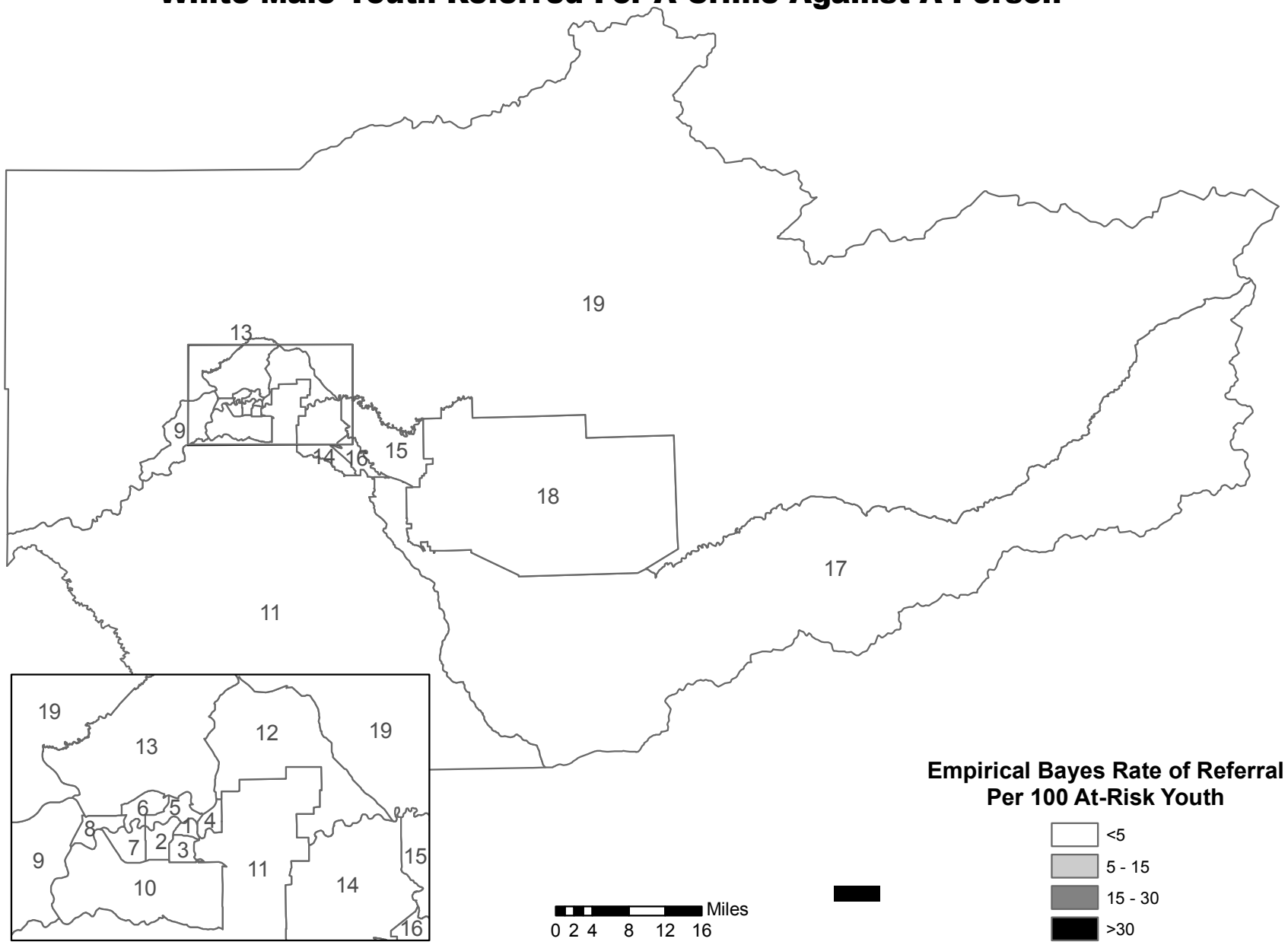


Figure 54. Empirical Bayes Rate of Referral By Census Tract - White Male Youth Referred For A Crime Against Property

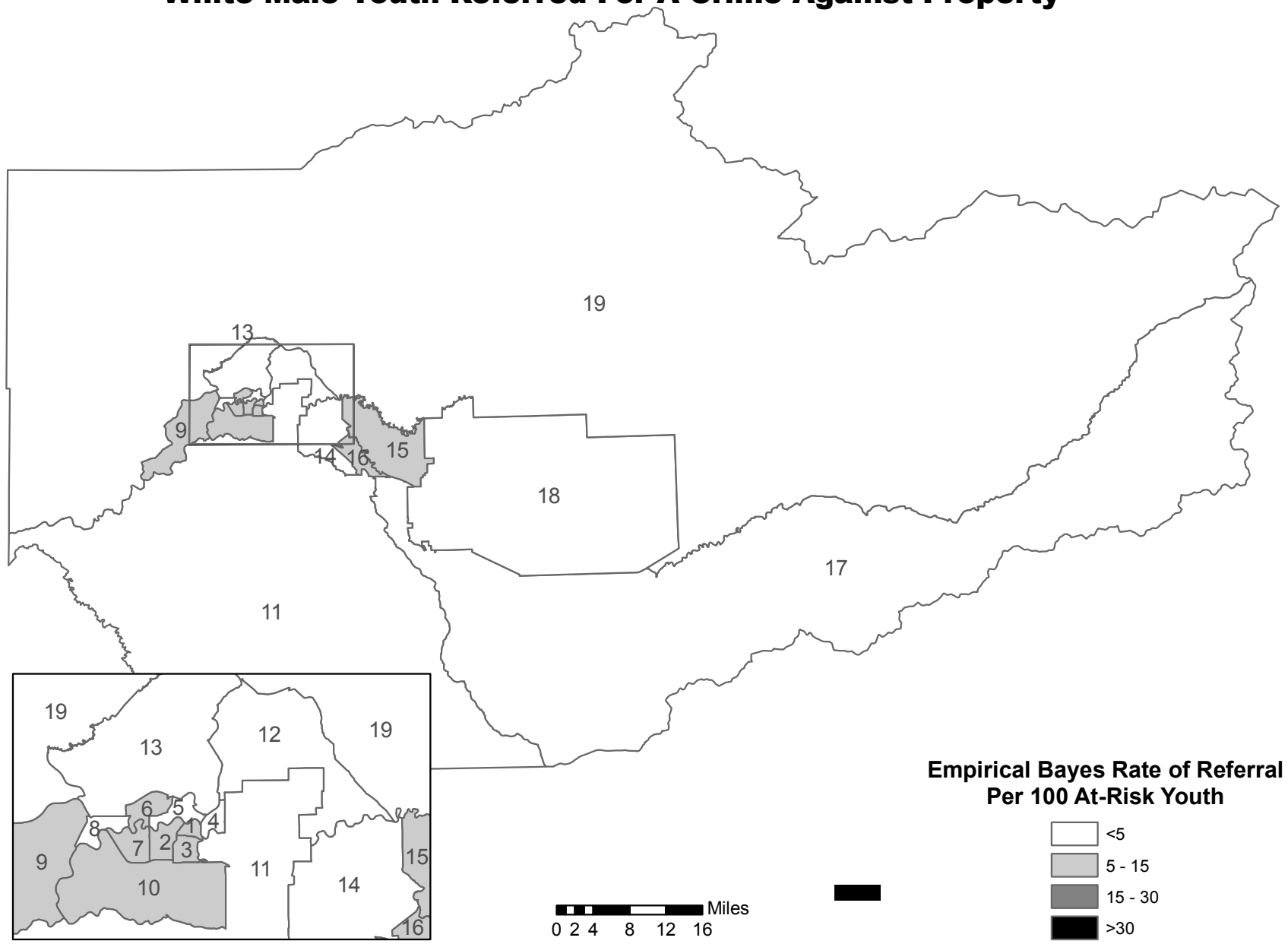


Figure 55. Empirical Bayes Rate of Referral By Census Tract - White Male Youth Referred For Other Criminal Offense Types

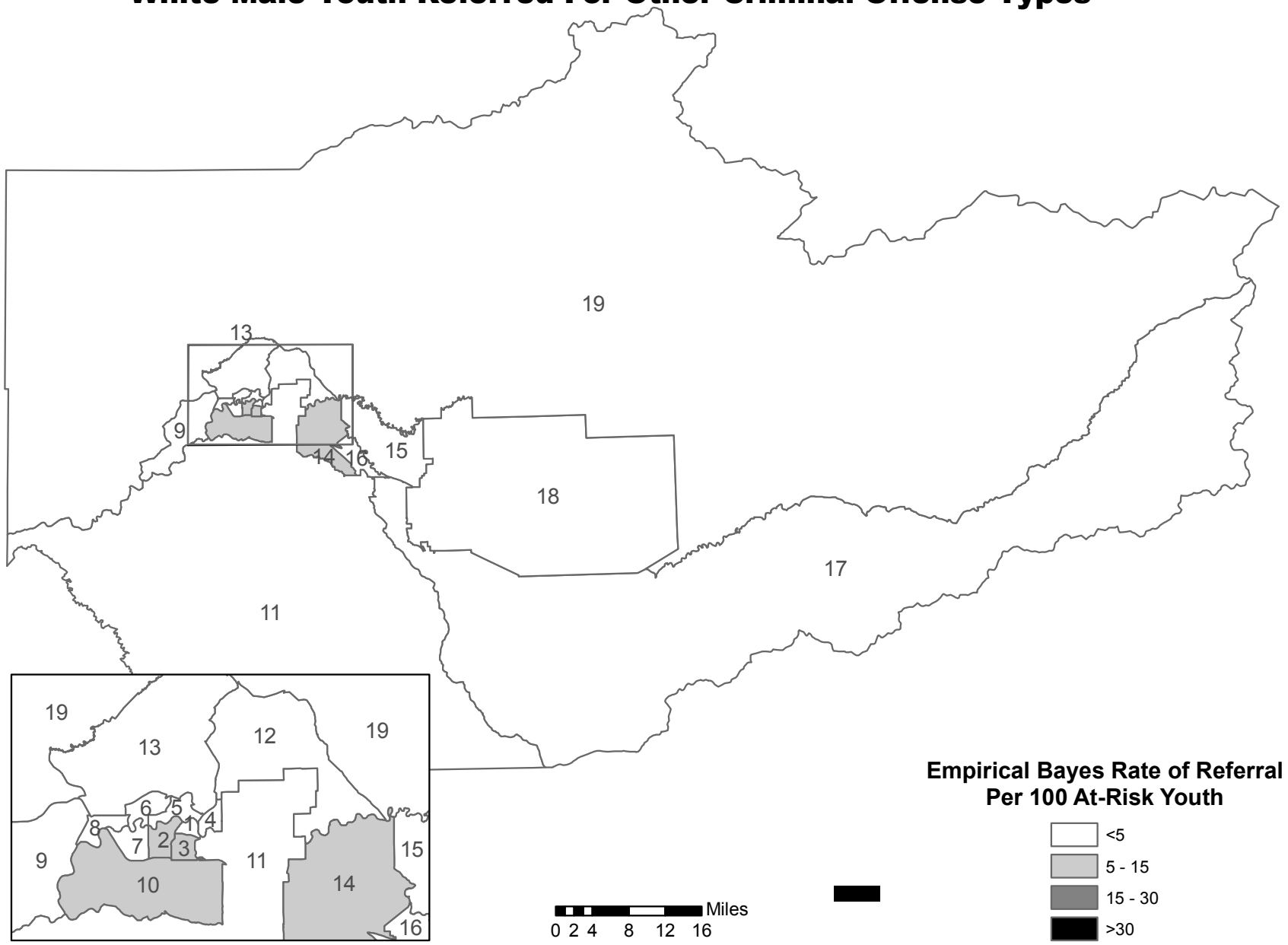


Figure 56. Empirical Bayes Rate of Referral By Census Tract - White Male Youth Referred For A Probation or Conduct Violation

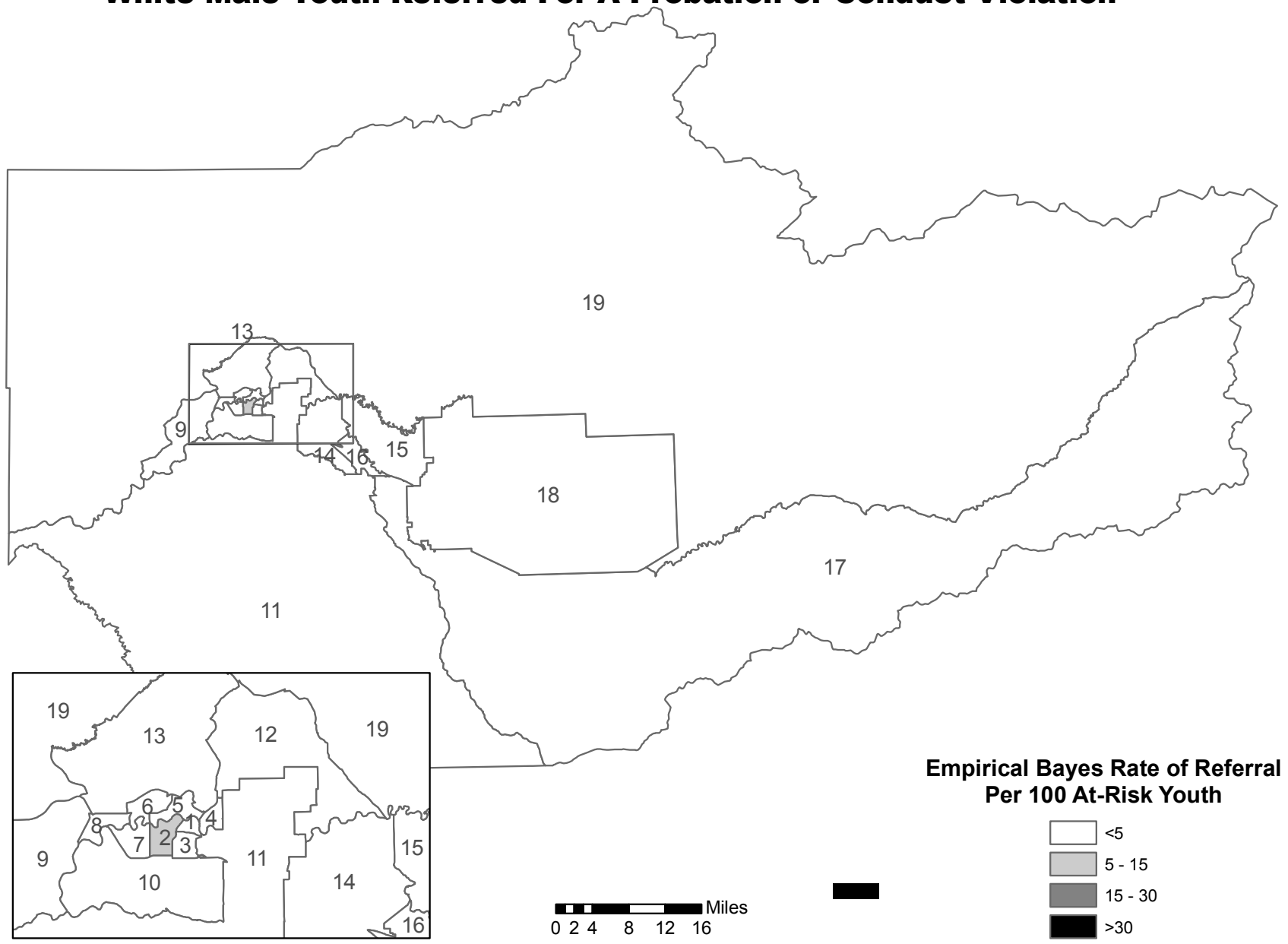


Figure 57. Empirical Bayes Rate of Referral By Census Tract - White Female Youth Referred For Any Referral Type

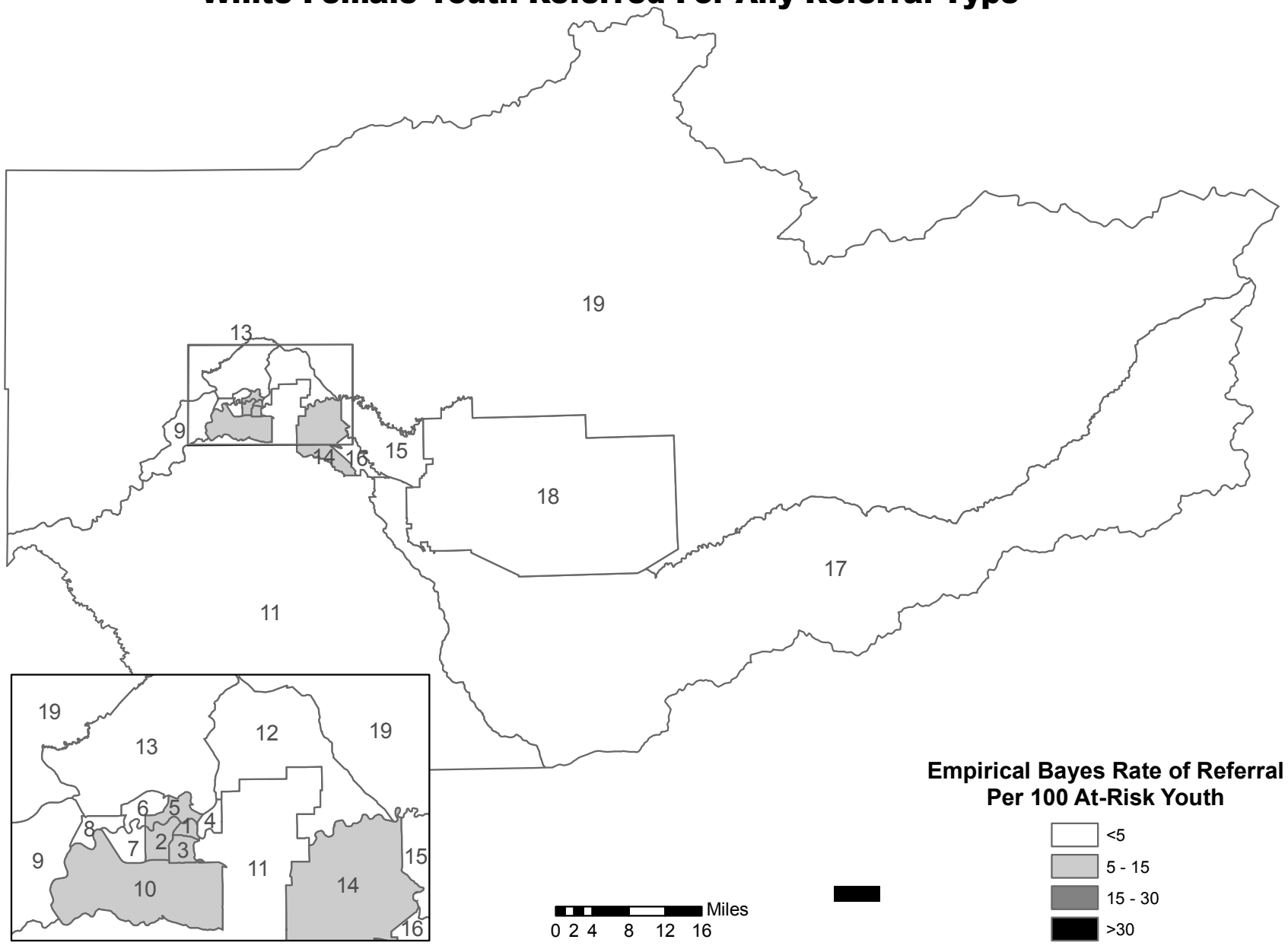


Figure 58. Empirical Bayes Rate of Referral By Census Tract - White Female Youth Referred For A Crime Against A Person

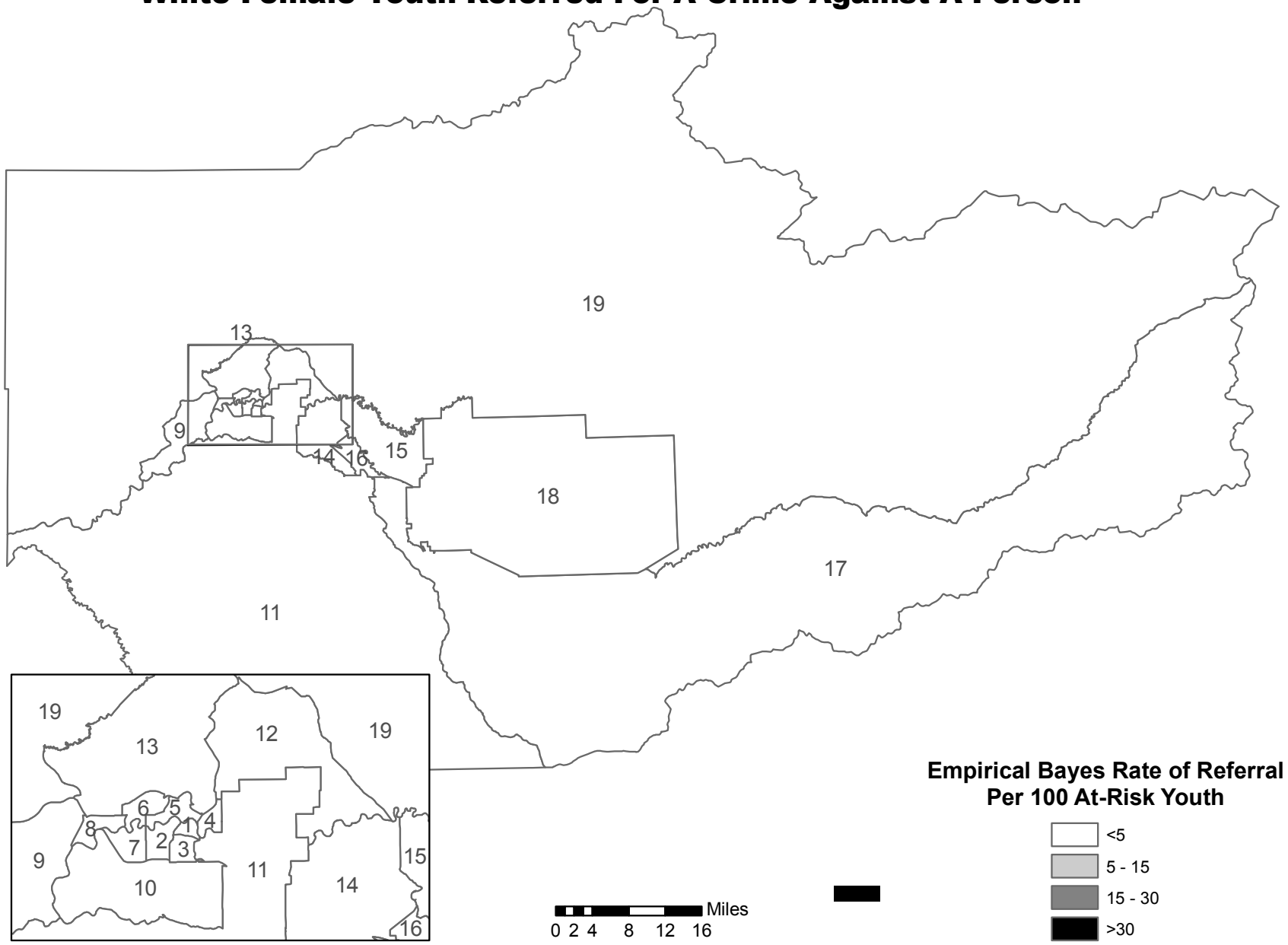


Figure 59. Empirical Bayes Rate of Referral By Census Tract - White Female Youth Referred For A Crime Against Property

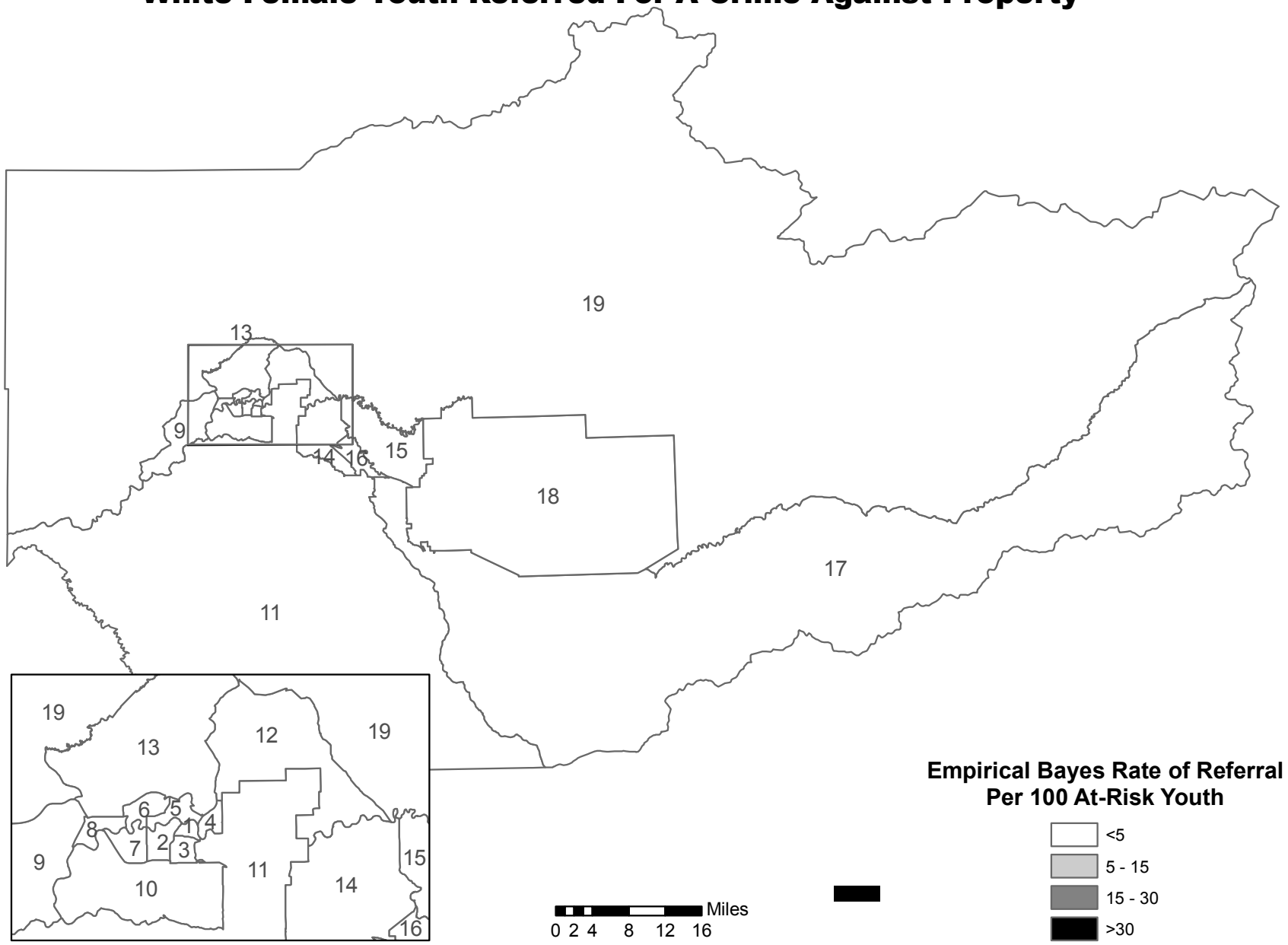


Figure 60. Empirical Bayes Rate of Referral By Census Tract - White Female Youth Referred For Other Criminal Offense Types

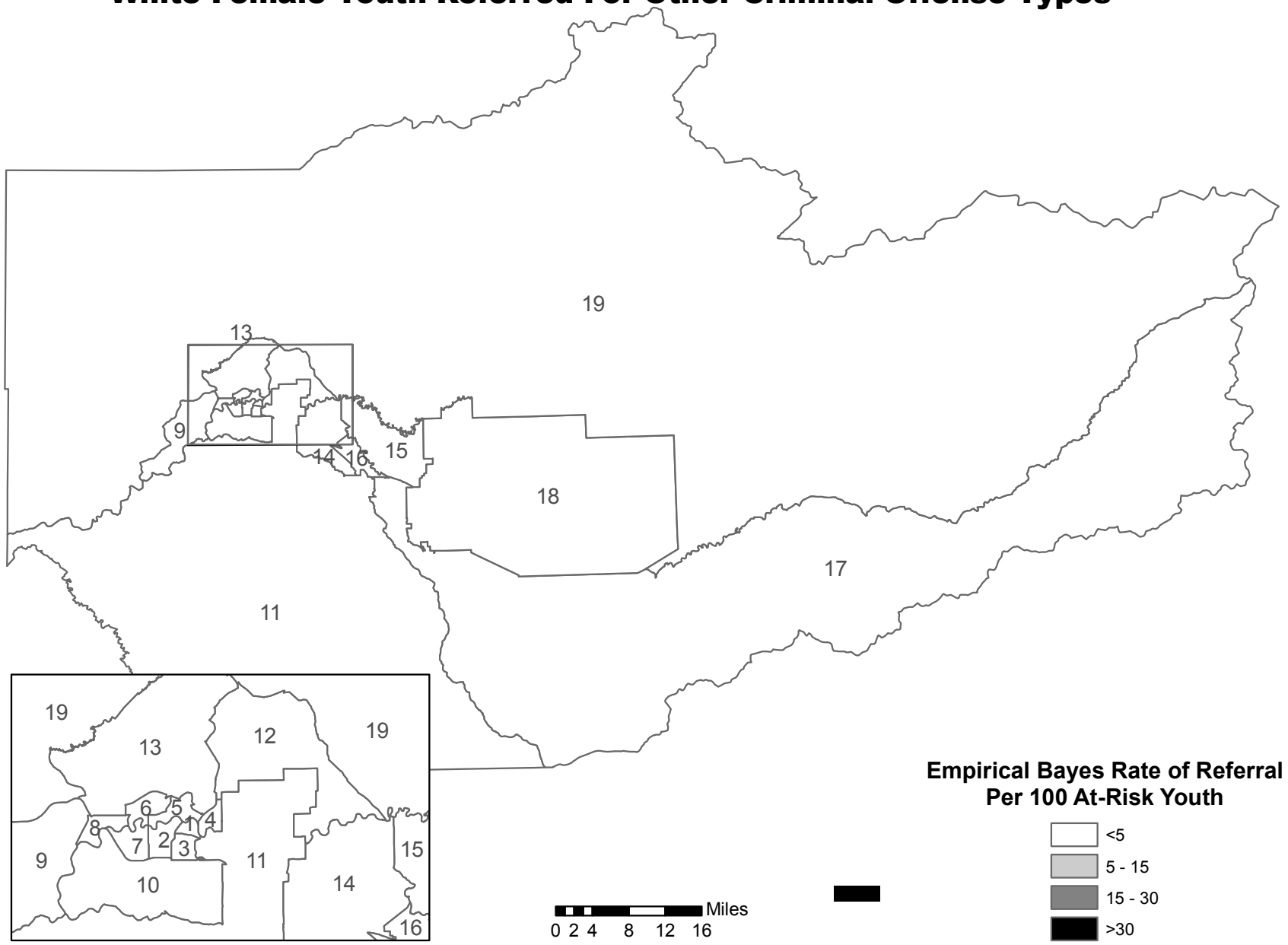


Figure 61. Empirical Bayes Rate of Referral By Census Tract - White Female Youth Referred For A Probation or Conduct Violation

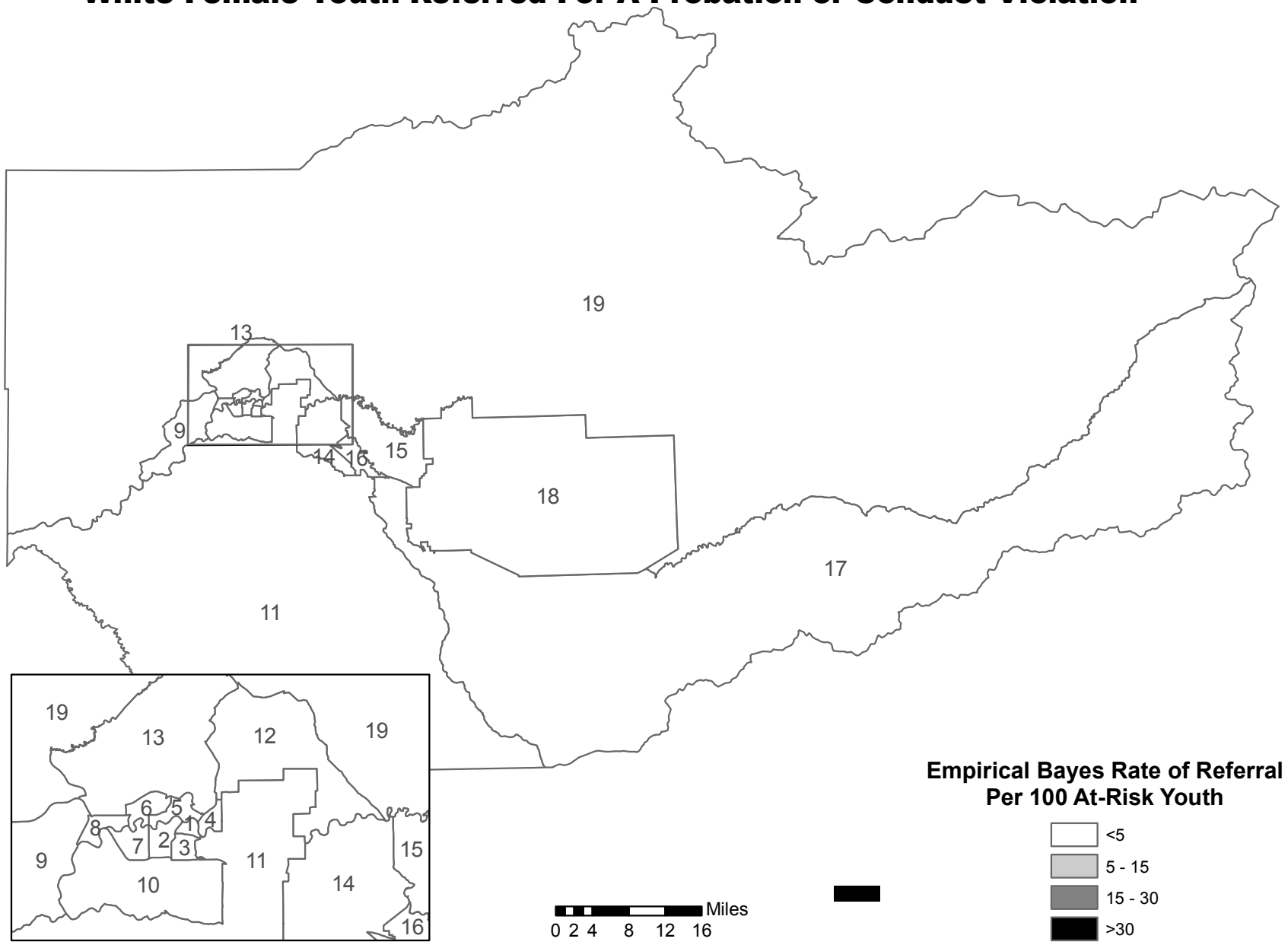


Figure 62. Empirical Bayes Rate of Referral By Census Tract - All Minority Youth Referred For Any Referral Type

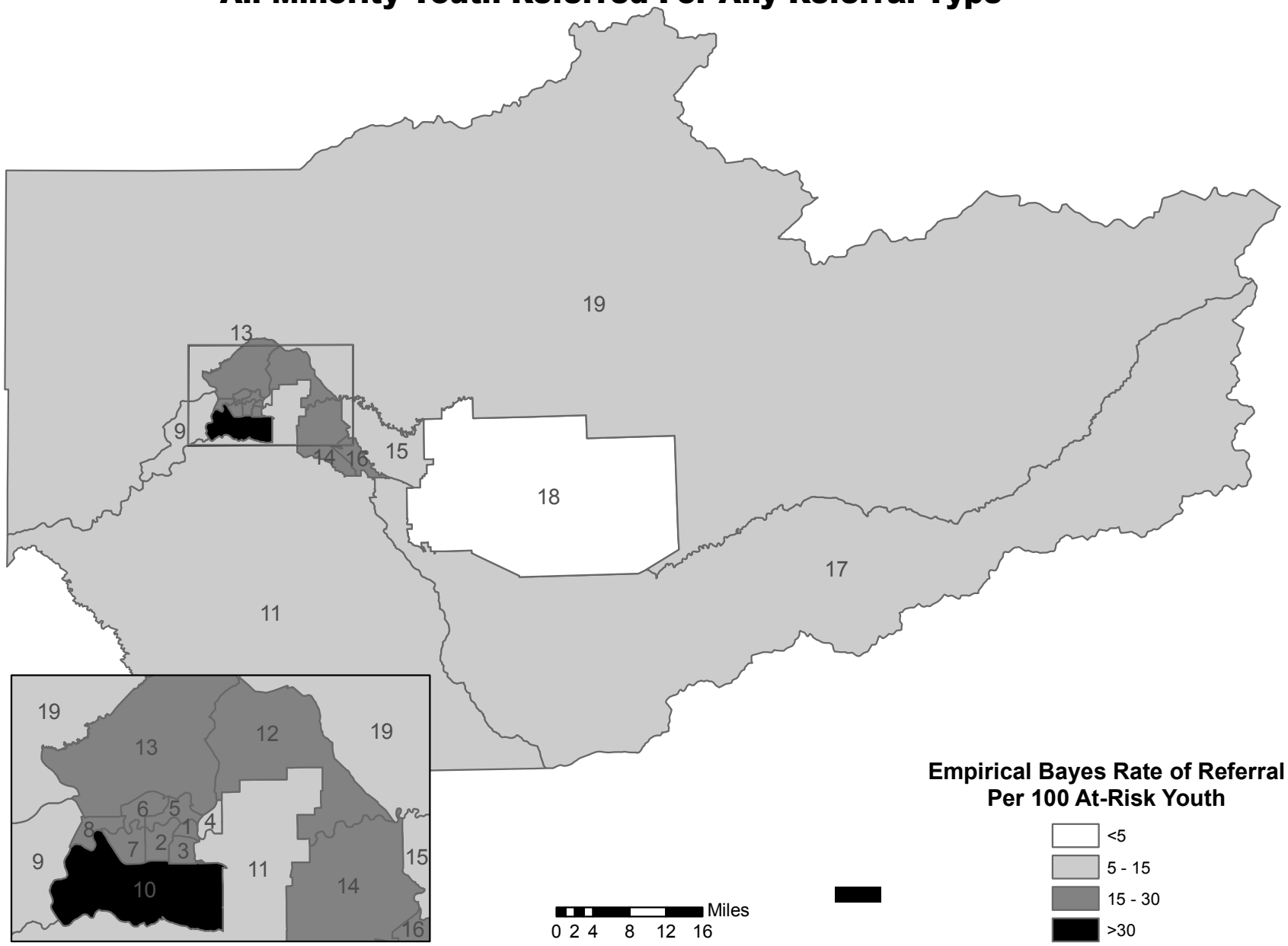


Figure 63. Empirical Bayes Rate of Referral By Census Tract - All Minority Youth Referred For A Crime Against A Person

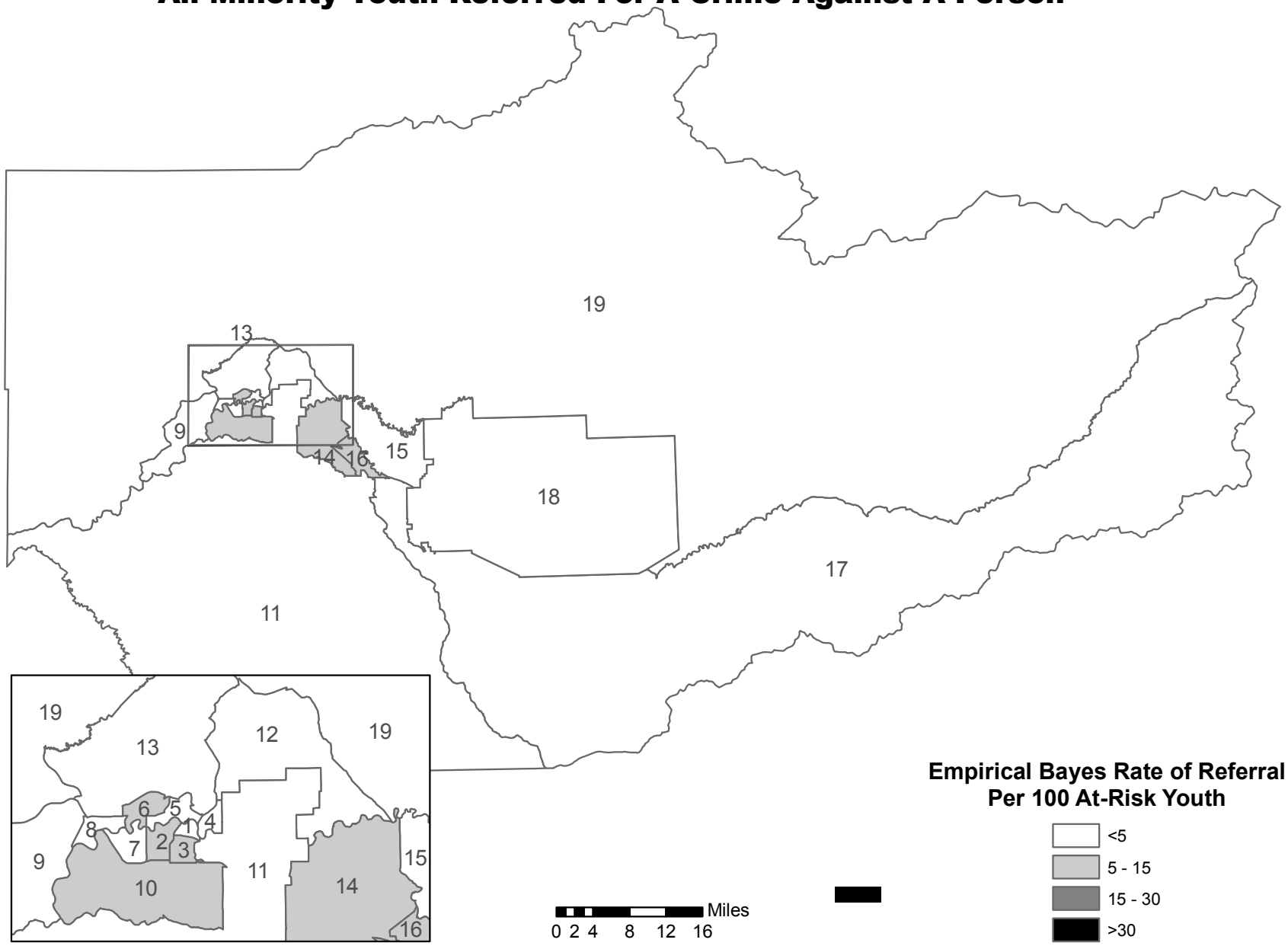


Figure 64. Empirical Bayes Rate of Referral By Census Tract - All Minority Youth Referred For A Crime Against Property

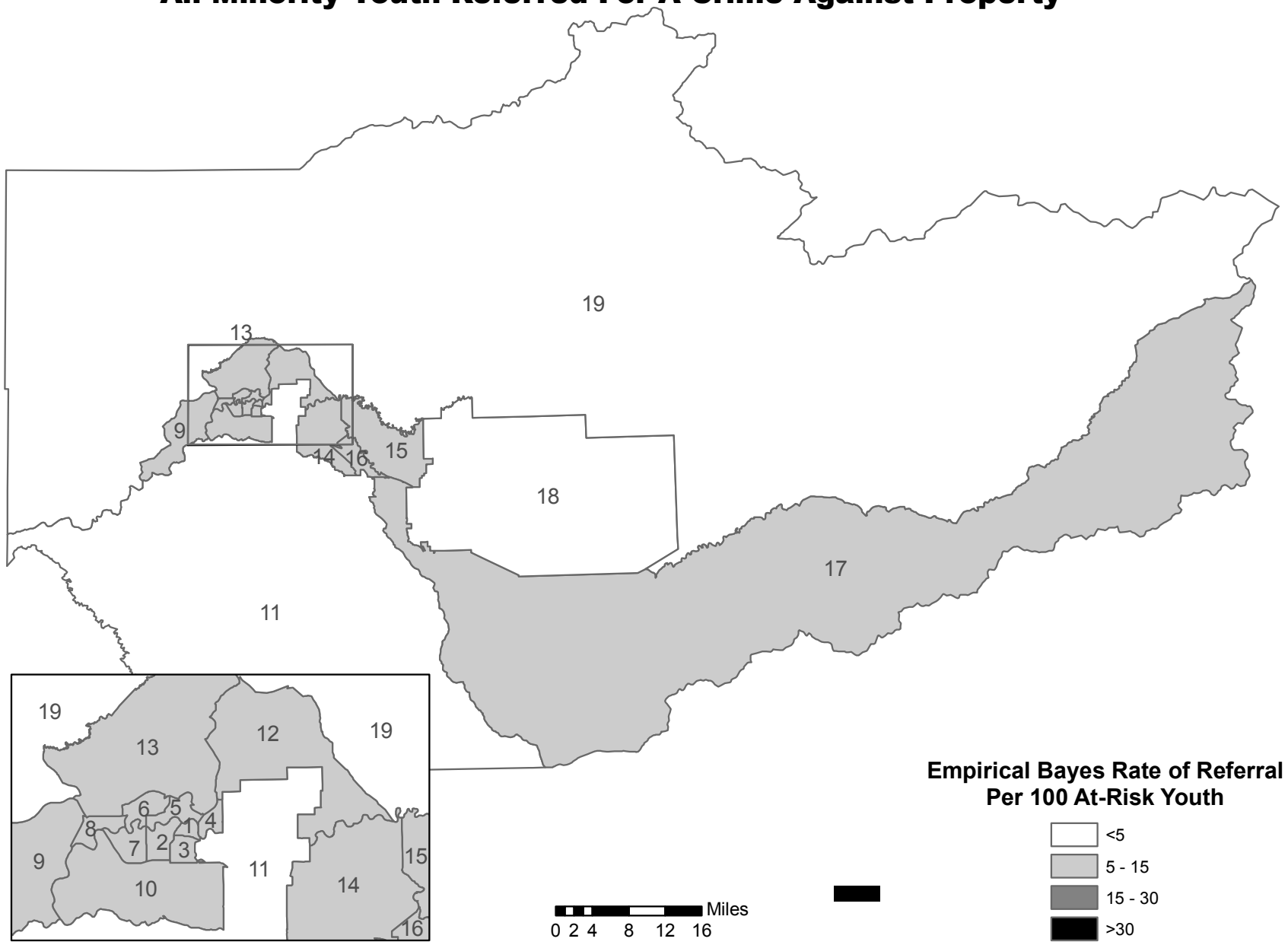


Figure 65. Empirical Bayes Rate of Referral By Census Tract - All Minority Youth Referred For Other Criminal Offense Types

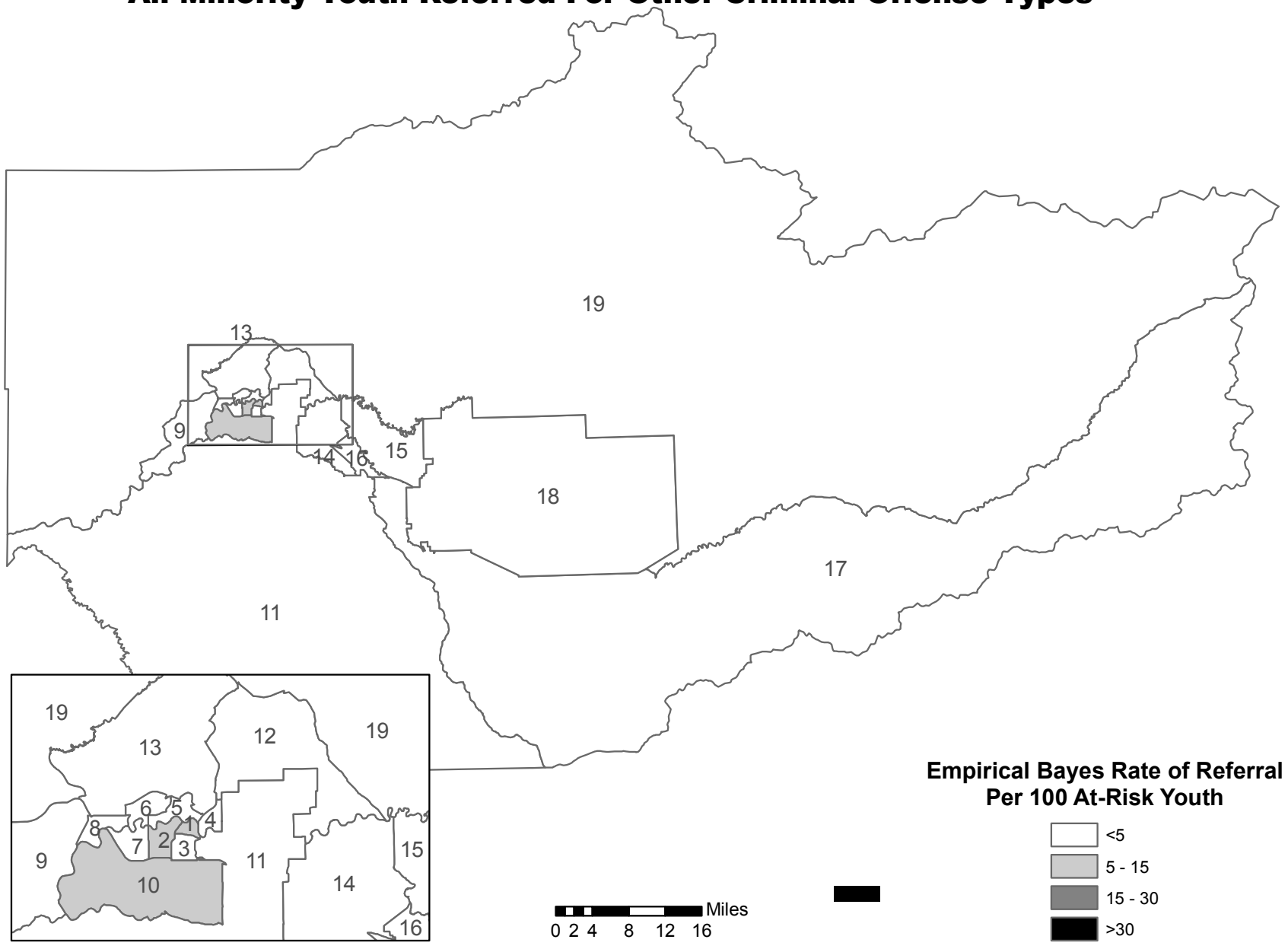


Figure 66. Empirical Bayes Rate of Referral By Census Tract - All Minority Youth Referred For A Probation or Conduct Violation

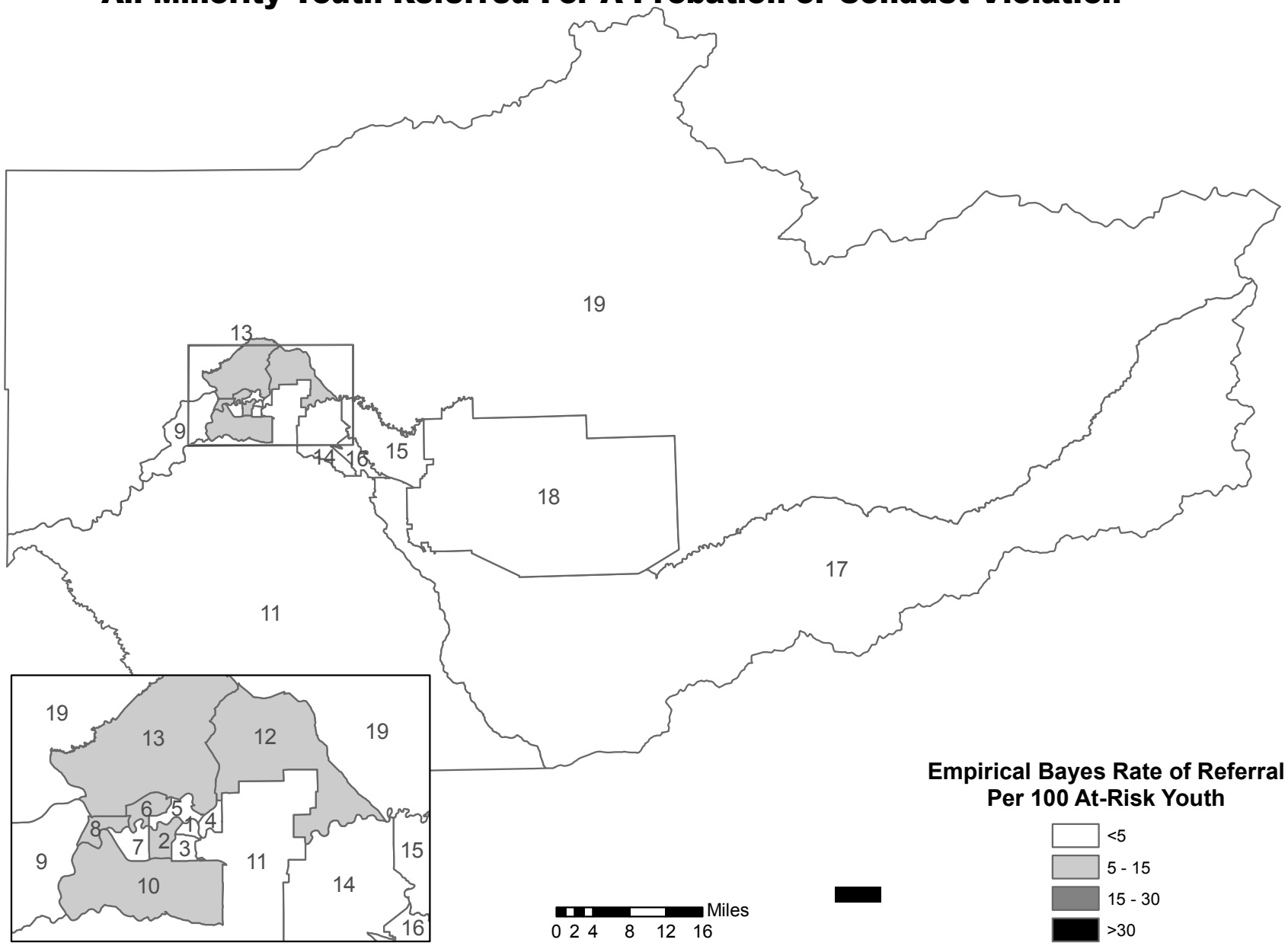


Figure 67. Empirical Bayes Rate of Referral By Census Tract - All Male Minority Youth Referred For Any Referral Type

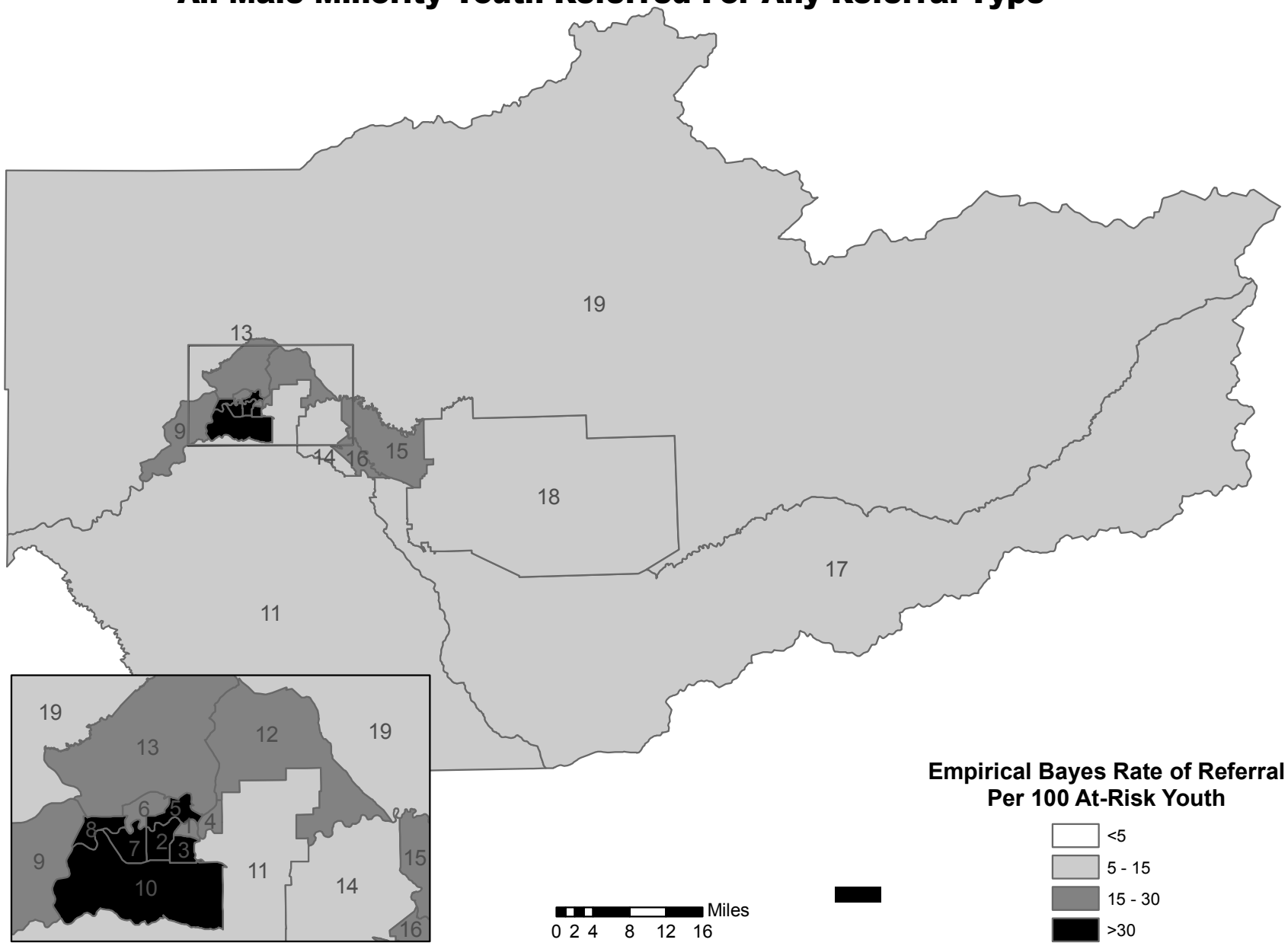


Figure 68. Empirical Bayes Rate of Referral By Census Tract - All Male Minority Youth Referred For A Crime Against A Person

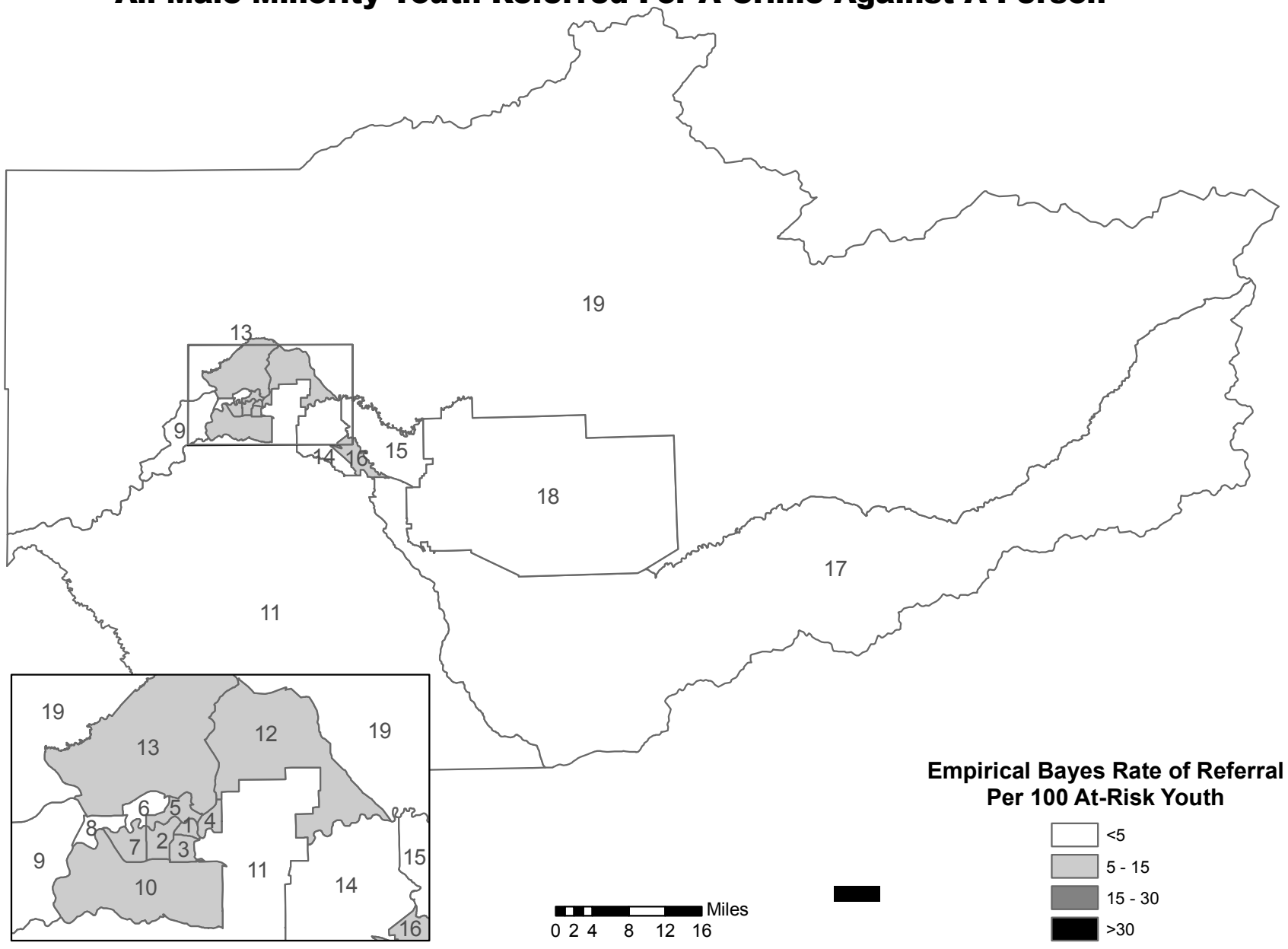


Figure 69. Empirical Bayes Rate of Referral By Census Tract - All Male Minority Youth Referred For A Crime Against Property

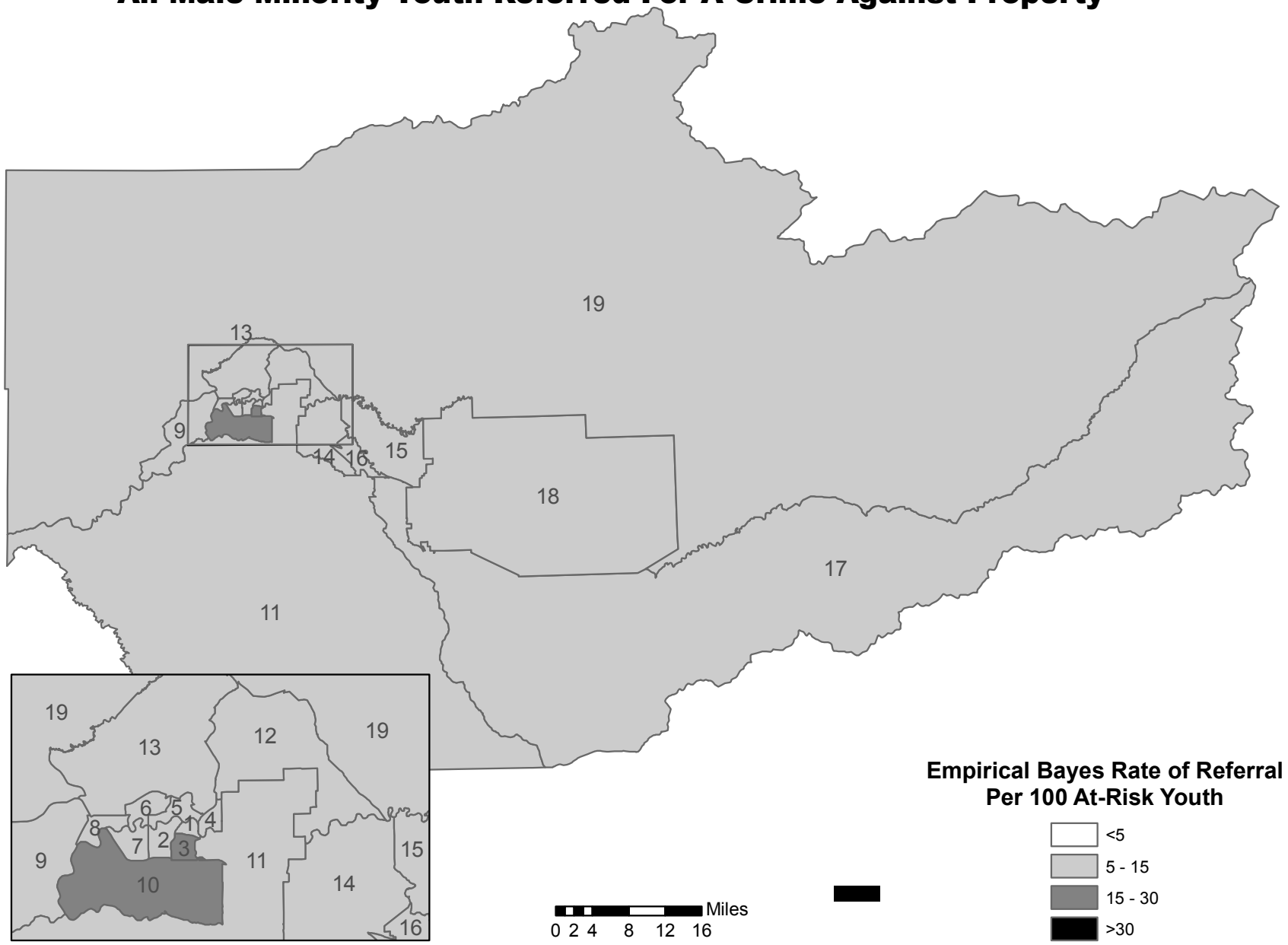


Figure 70. Empirical Bayes Rate of Referral By Census Tract - All Male Minority Youth Referred For Other Criminal Offense Types

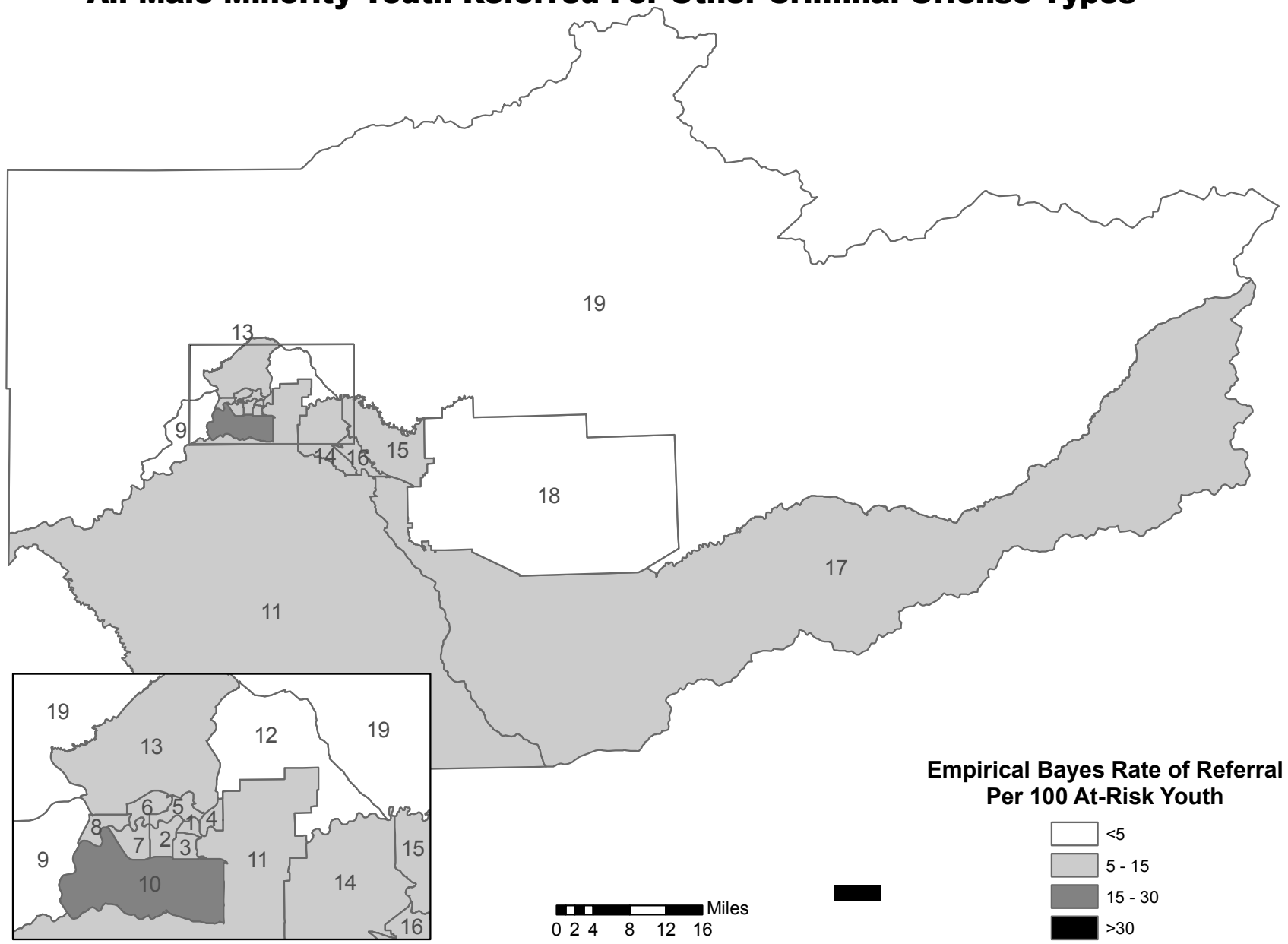


Figure 71. Empirical Bayes Rate of Referral By Census Tract - All Male Minority Youth Referred For A Probation or Conduct Violation

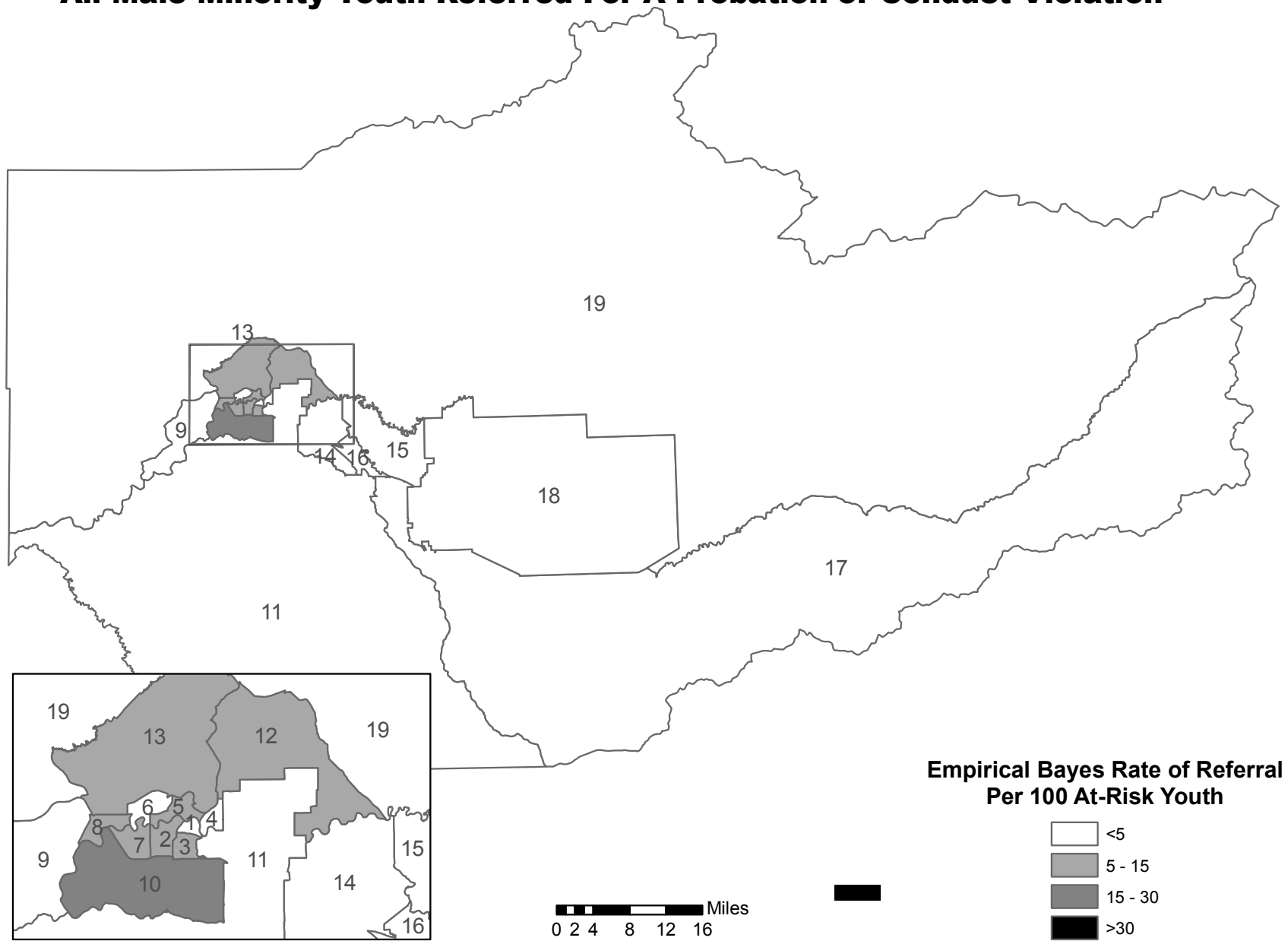


Figure 72. Empirical Bayes Rate of Referral By Census Tract - All Female Minority Youth Referred For Any Referral

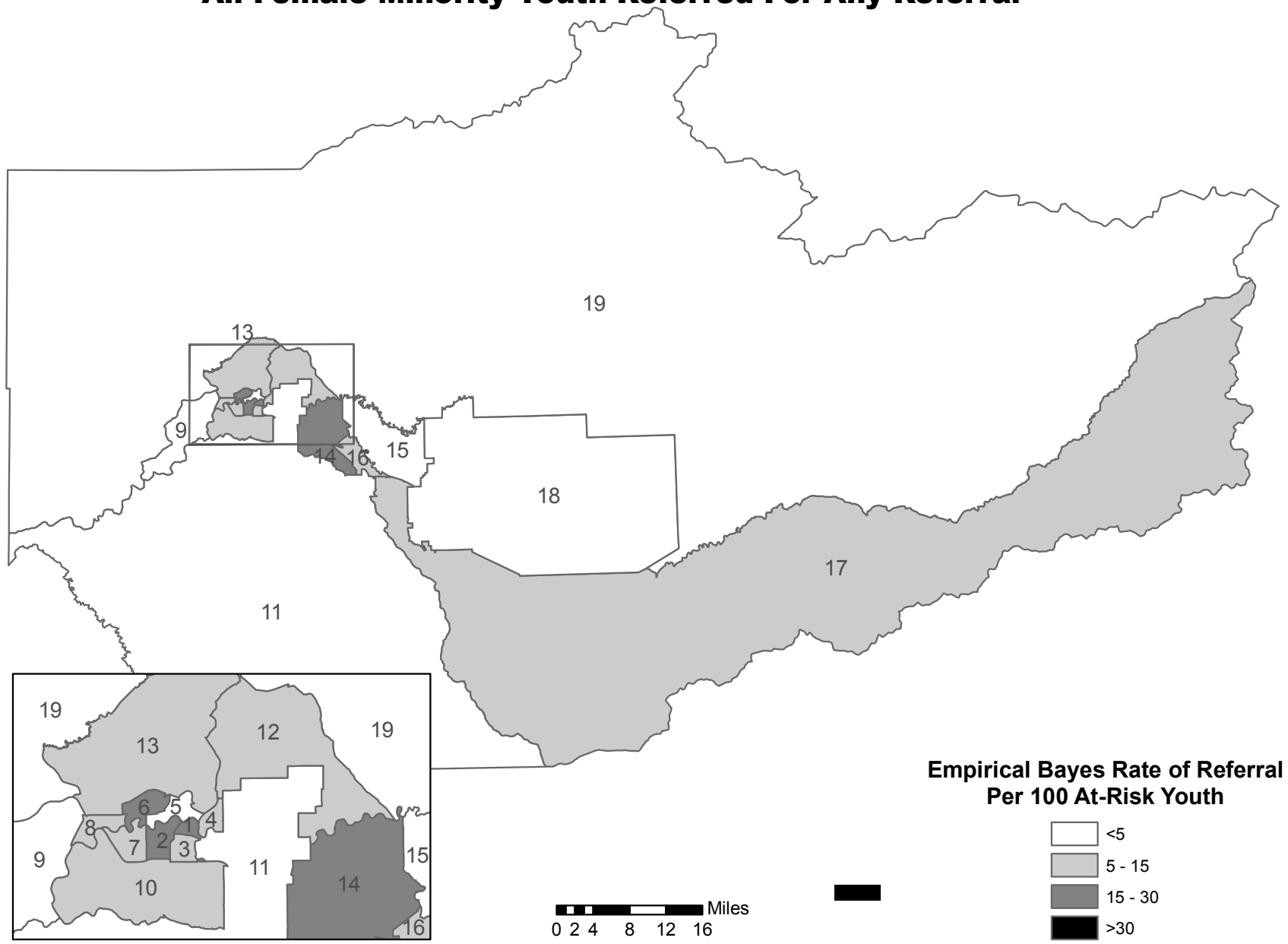


Figure 73. Empirical Bayes Rate of Referral By Census Tract - All Female Minority Youth Referred For A Crime Against A Person

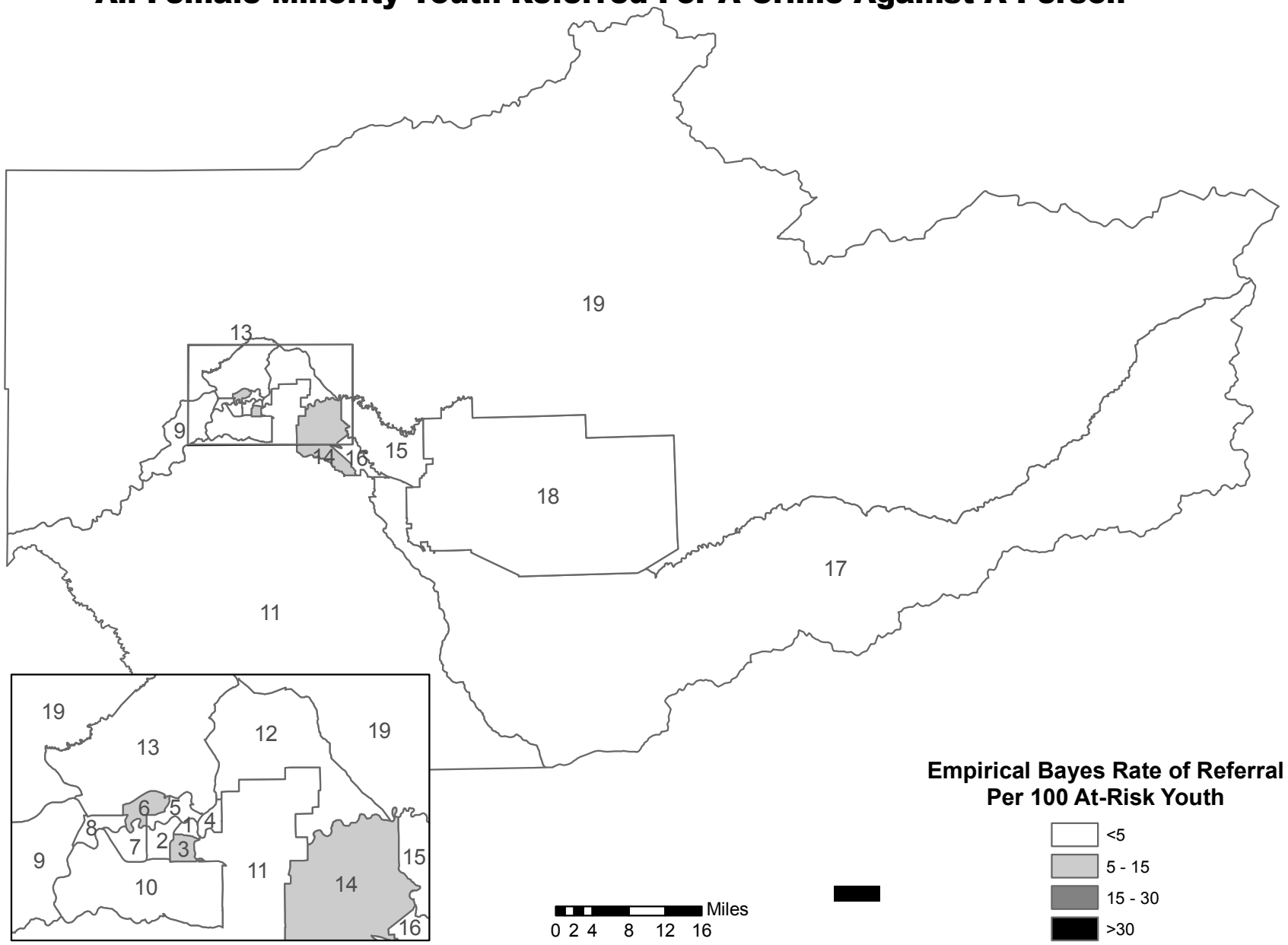


Figure 74. Empirical Bayes Rate of Referral By Census Tract - All Female Minority Youth Referred For A Crime Against Property

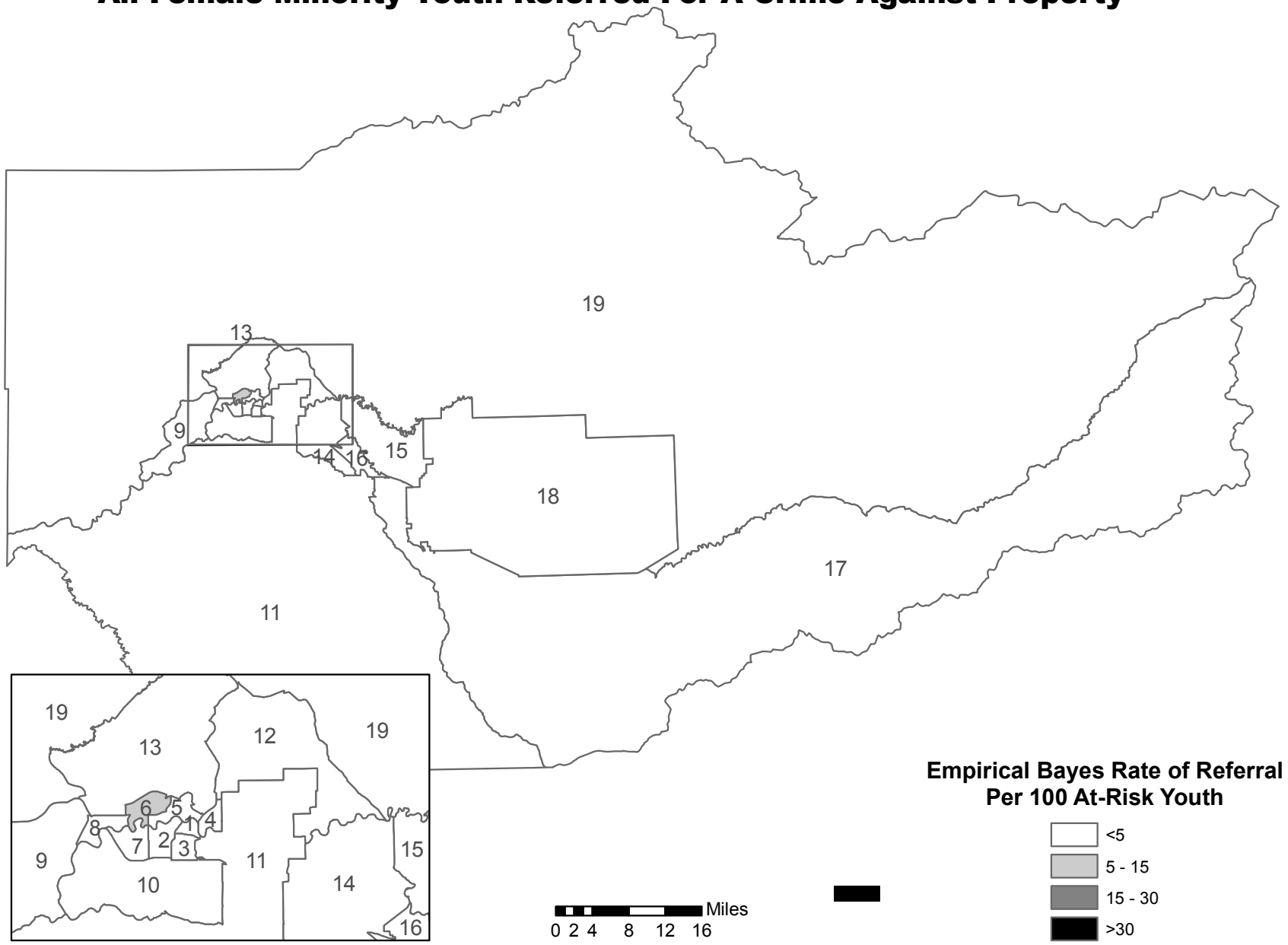


Figure 75. Empirical Bayes Rate of Referral By Census Tract - All Female Minority Youth Referred For Other Criminal Offense Types

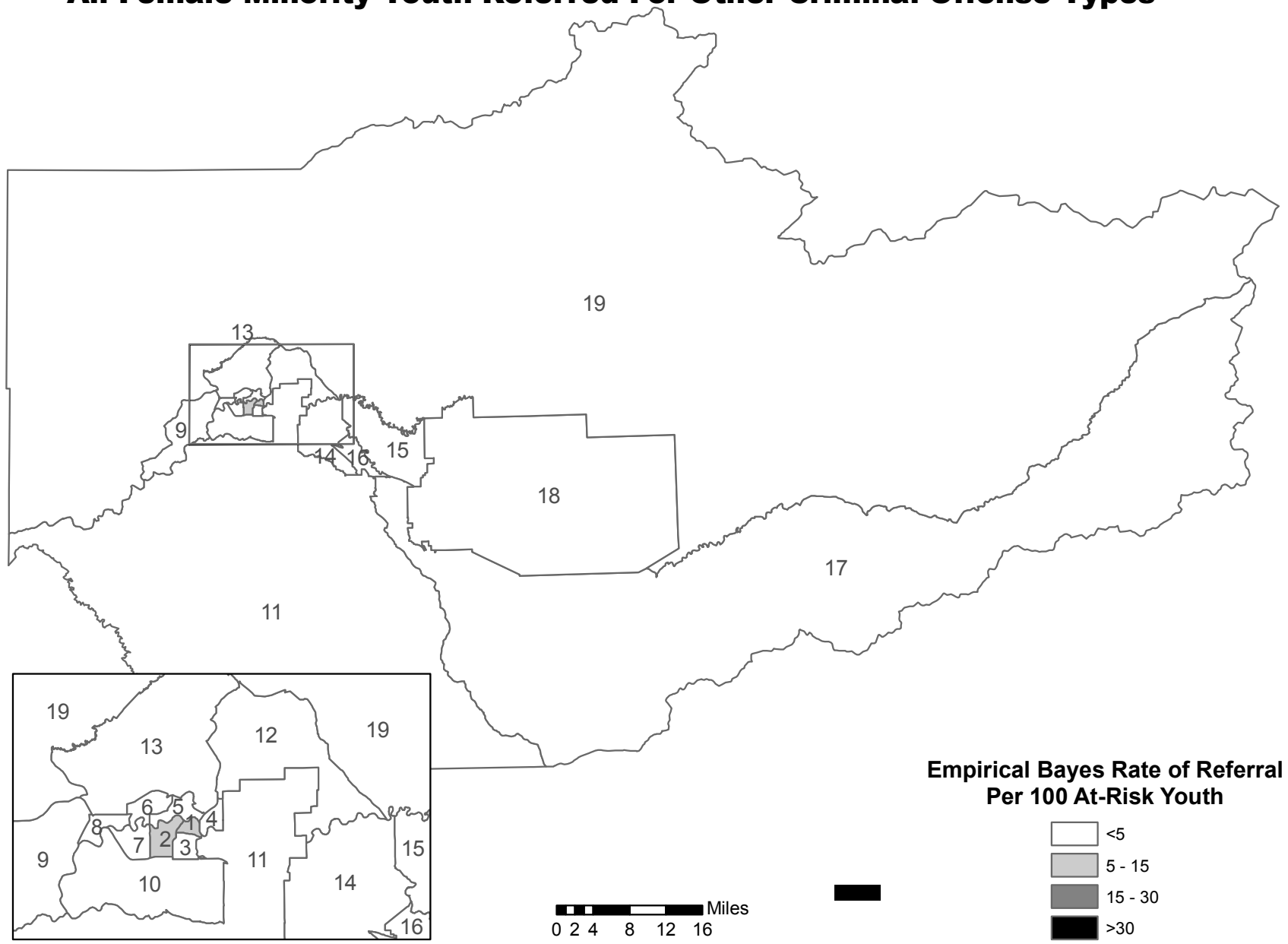


Figure 76. Empirical Bayes Rate of Referral By Census Tract - All Female Minority Youth Referred For A Probation or Conduct Violation

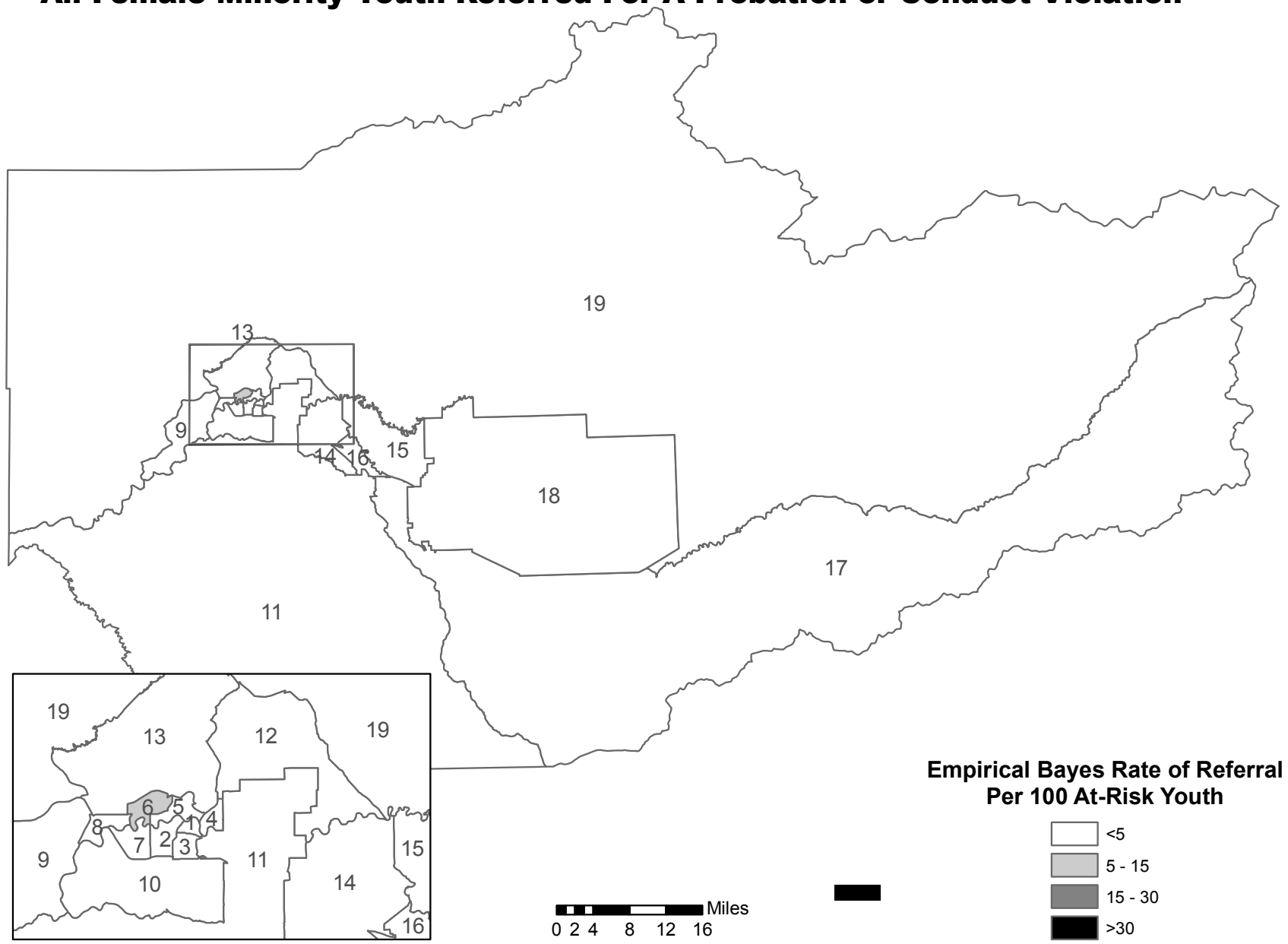


Figure 77. Empirical Bayes Rate of Referral By Census Tract - Native Youth Referred For Any Referral Type

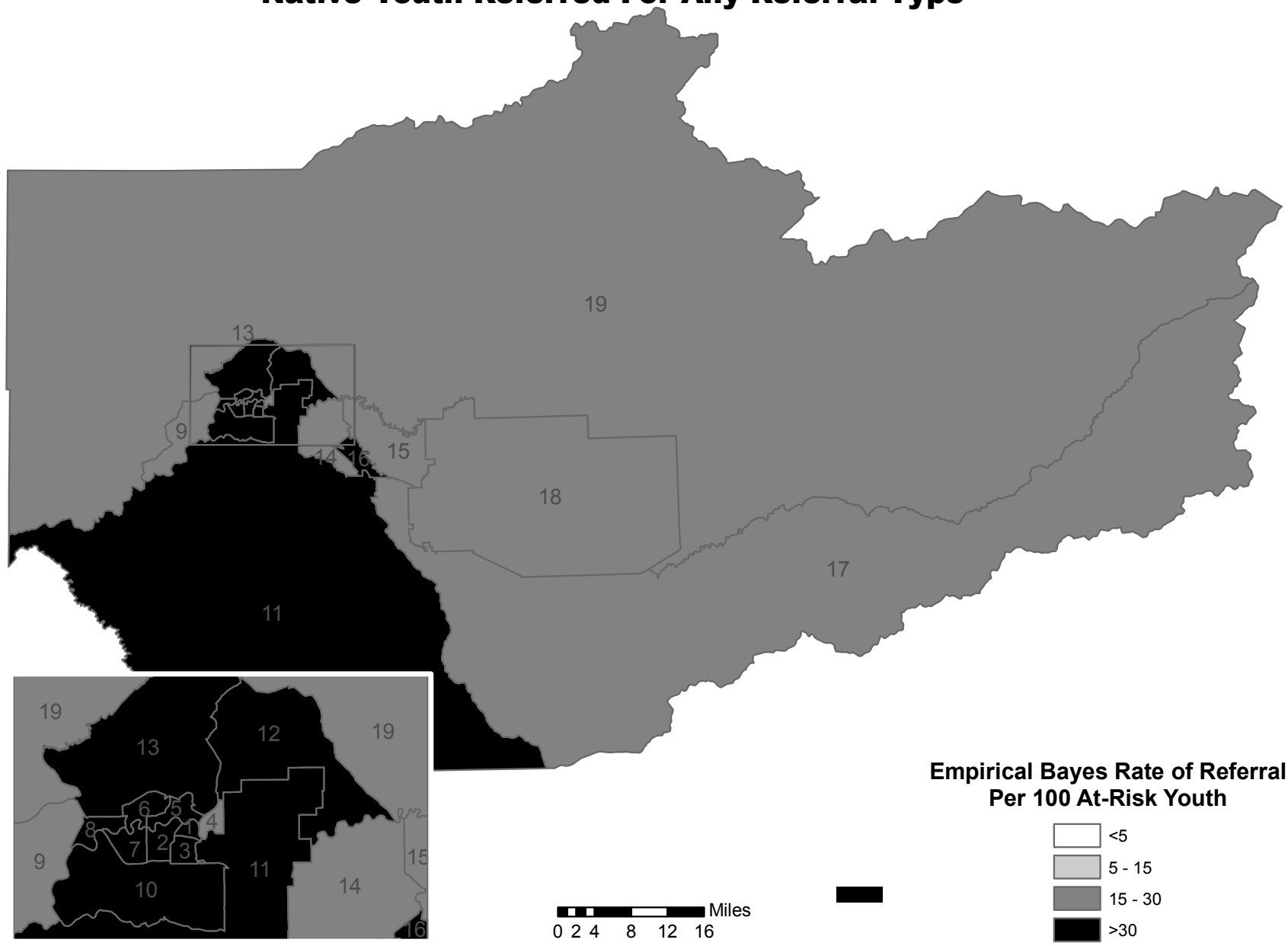


Figure 78. Empirical Bayes Rate of Referral By Census Tract - Native Youth Referred For A Crime Against A Person

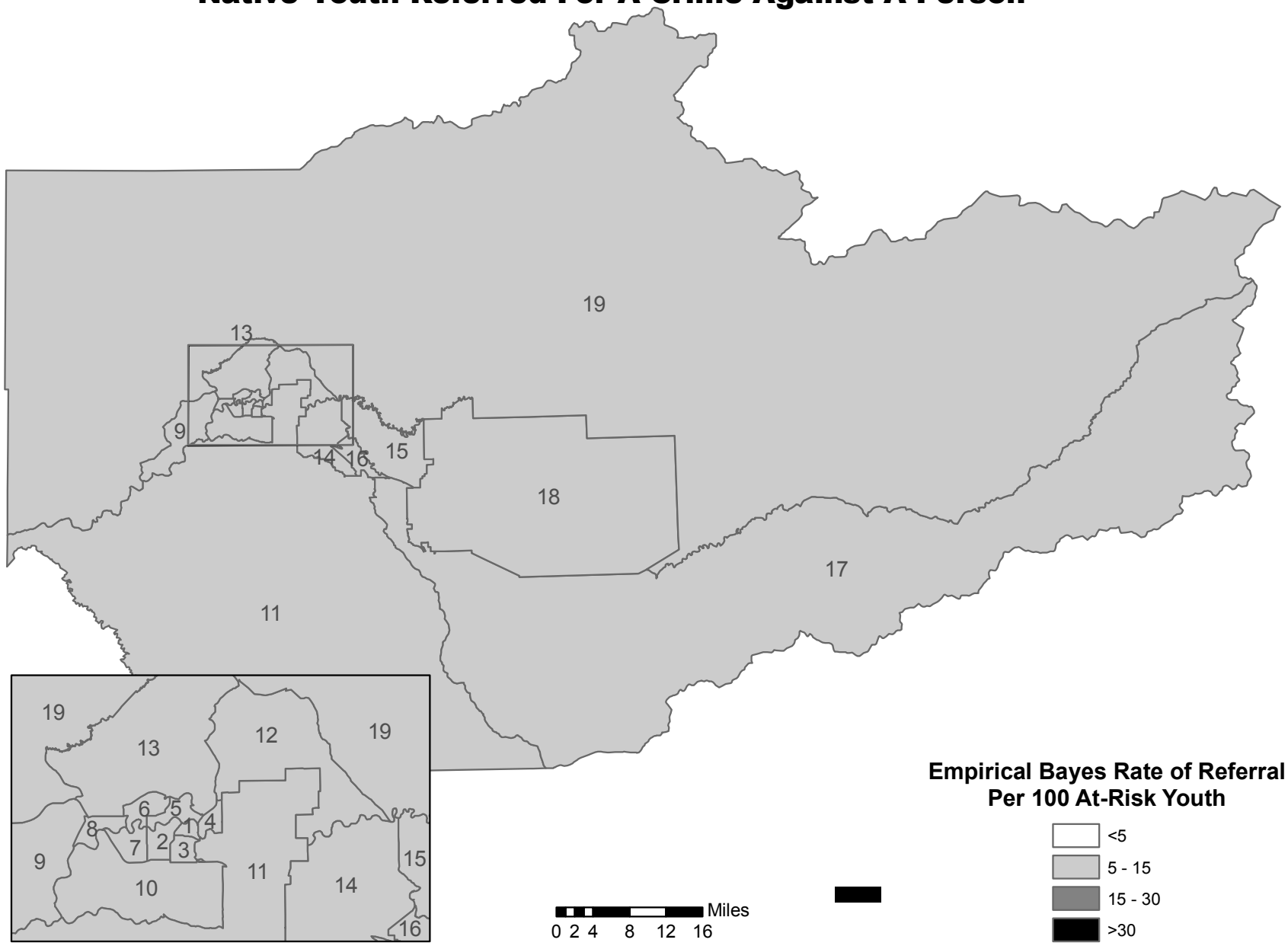


Figure 79. Empirical Bayes Rate of Referral By Census Tract - Native Youth Referred For A Crime Against Property

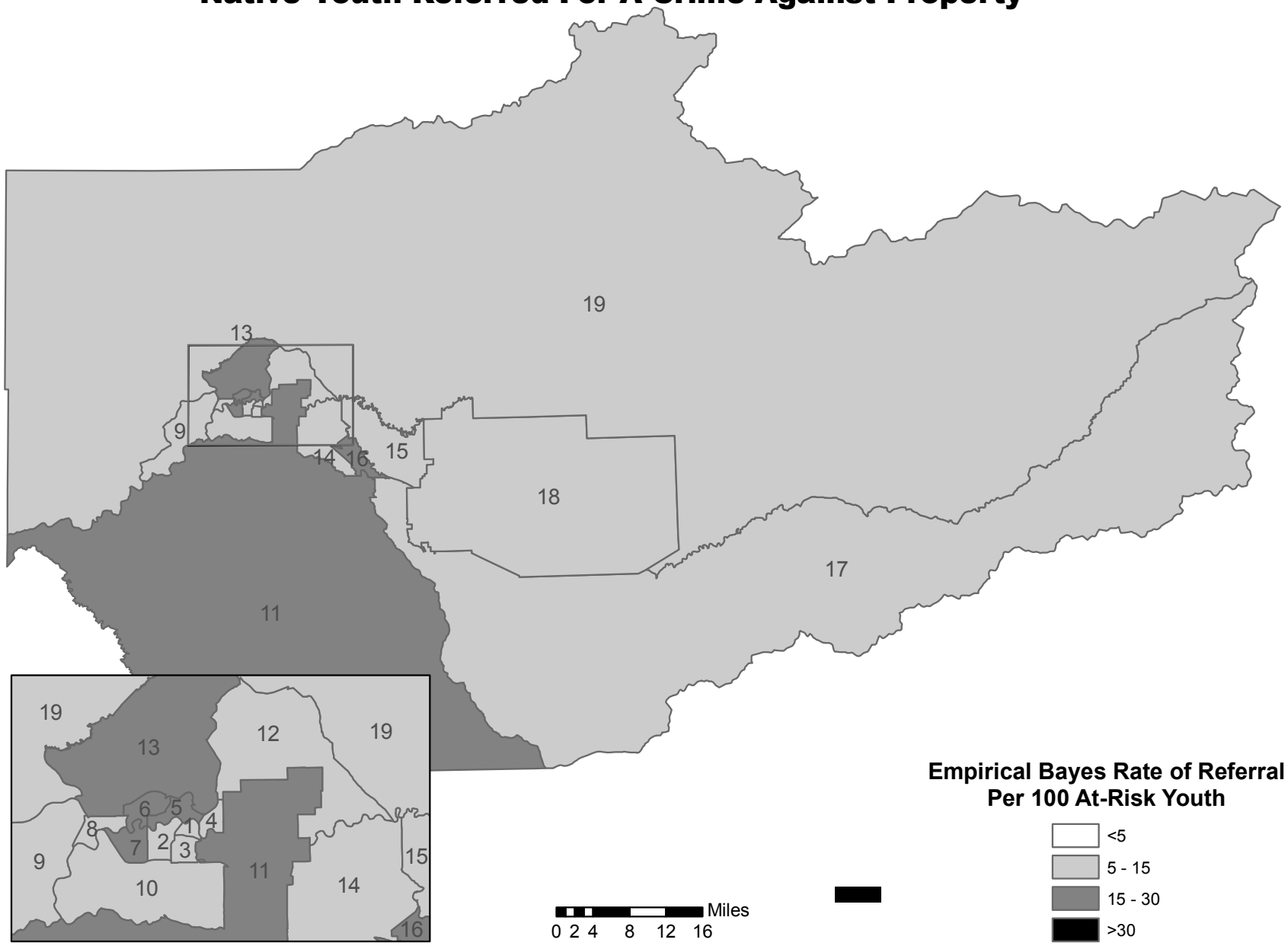


Figure 80. Empirical Bayes Rate of Referral By Census Tract - Native Youth Referred For Other Criminal Offense Types

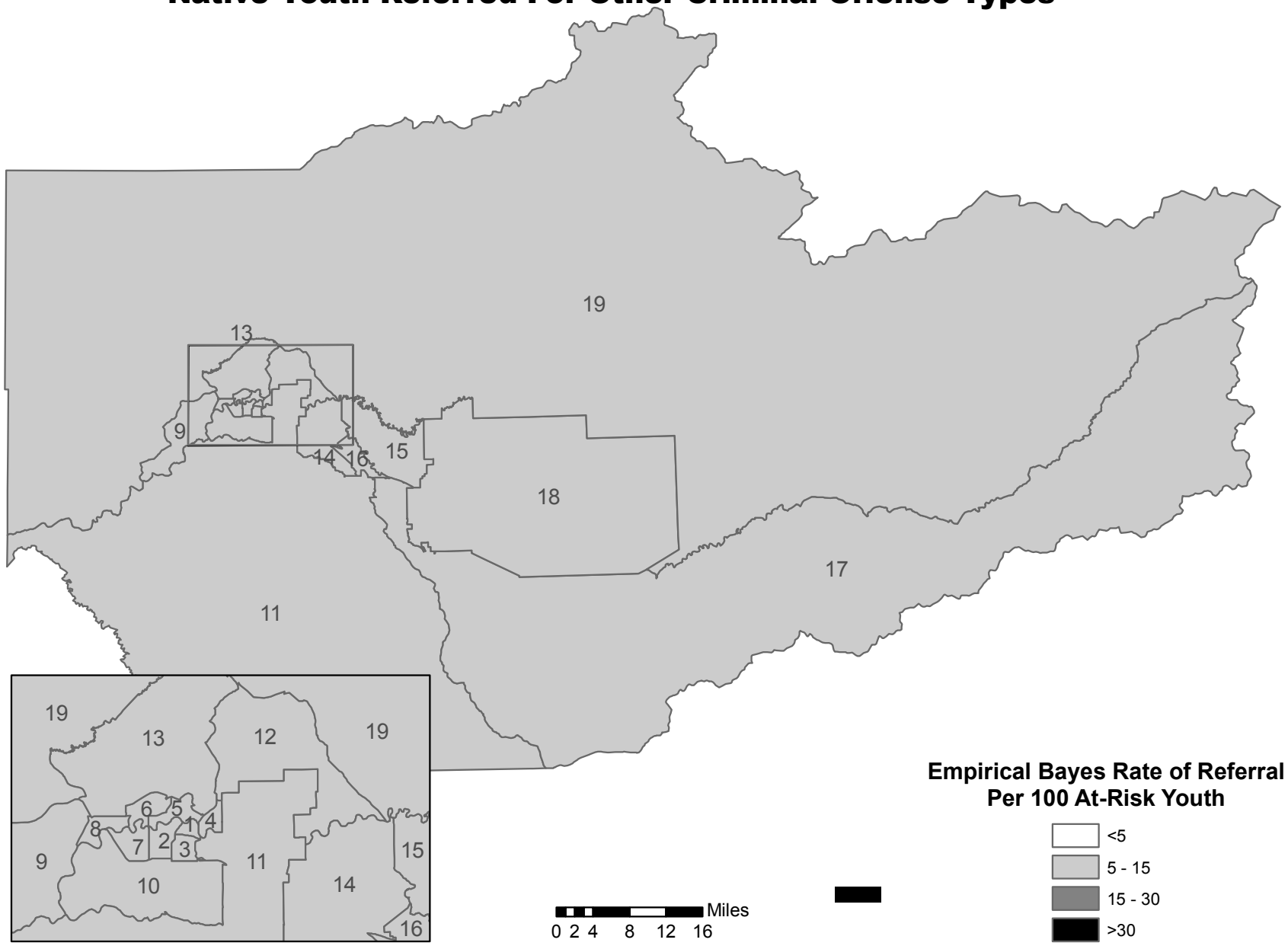


Figure 81. Empirical Bayes Rate of Referral By Census Tract - Native Youth Referred For A Probation or Conduct Violation

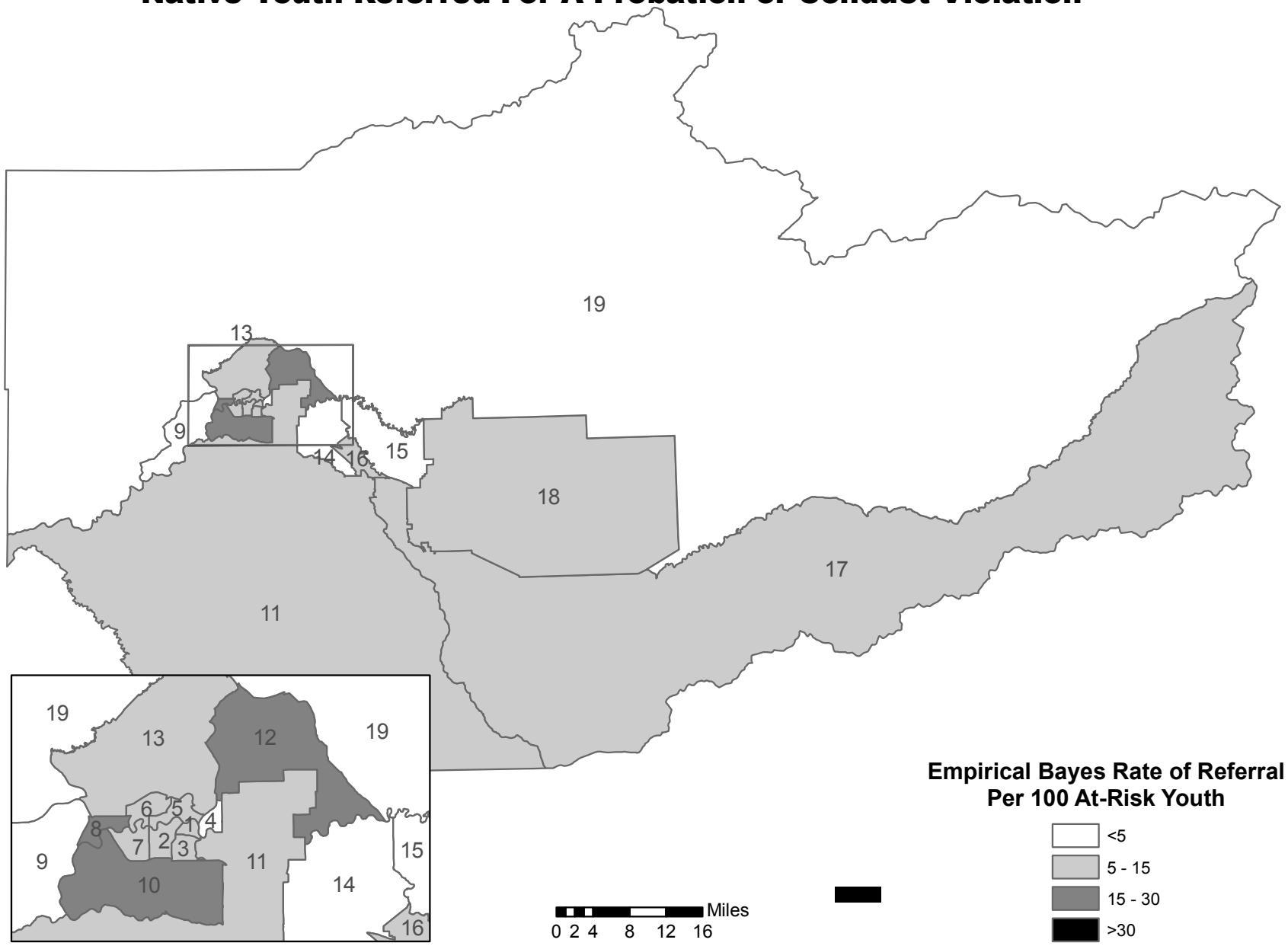


Figure 82. Empirical Bayes Rate of Referral By Census Tract - Native Male Youth Referred For Any Referral Type

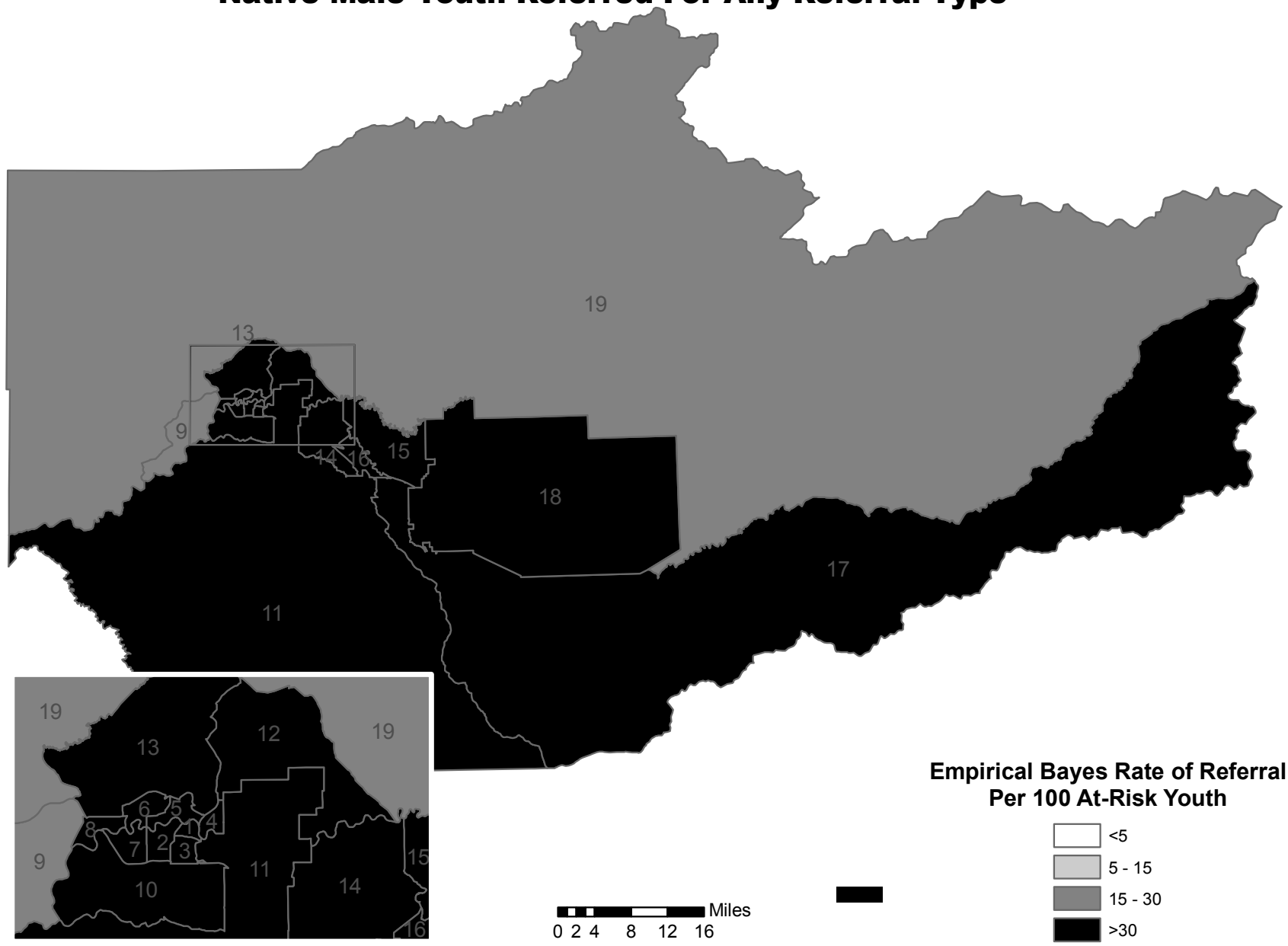


Figure 83. Empirical Bayes Rate of Referral By Census Tract - Native Male Youth Referred For A Crime Against A Person

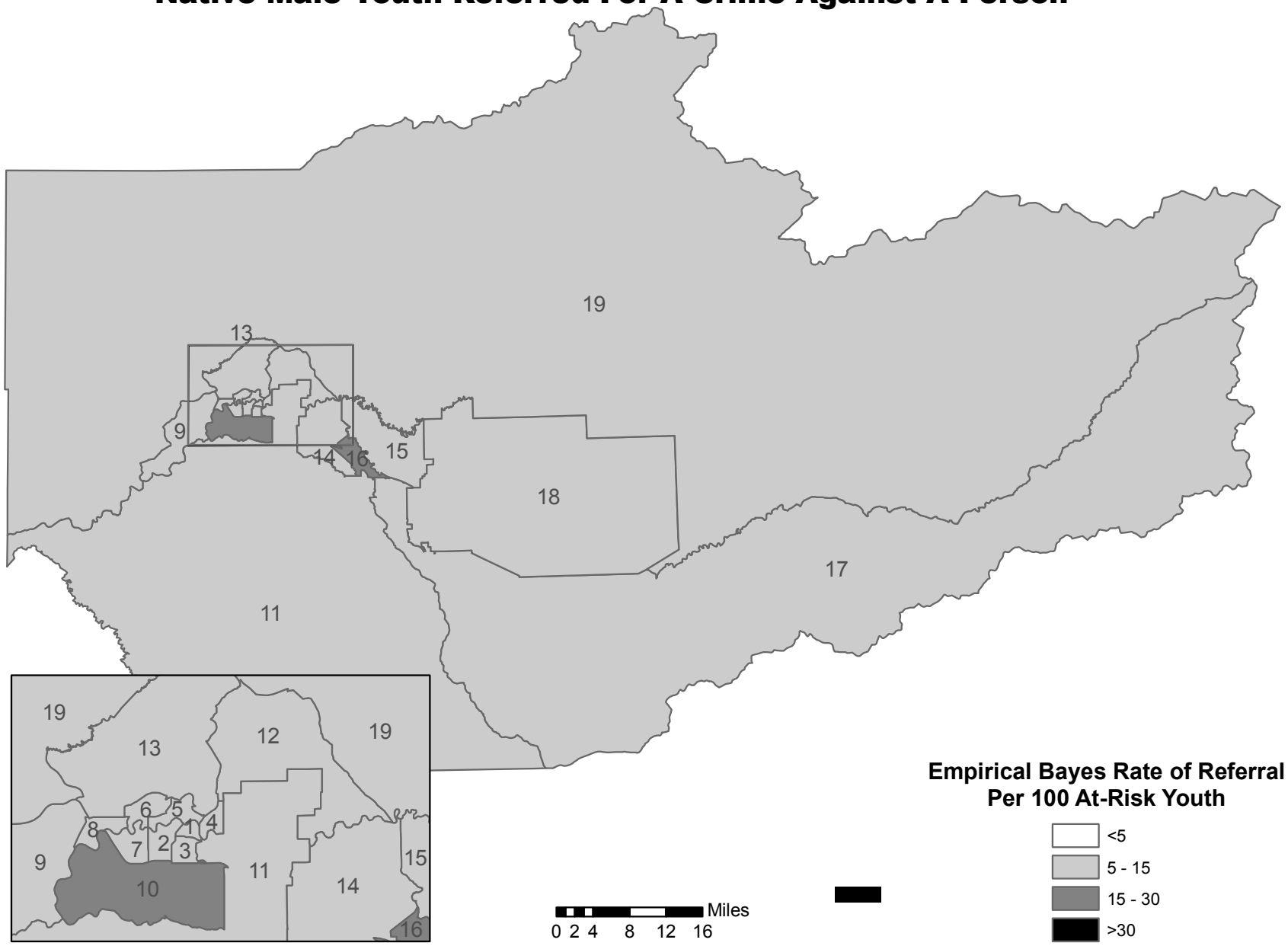


Figure 84. Empirical Bayes Rate of Referral By Census Tract - Native Male Youth Referred For A Crime Against Property

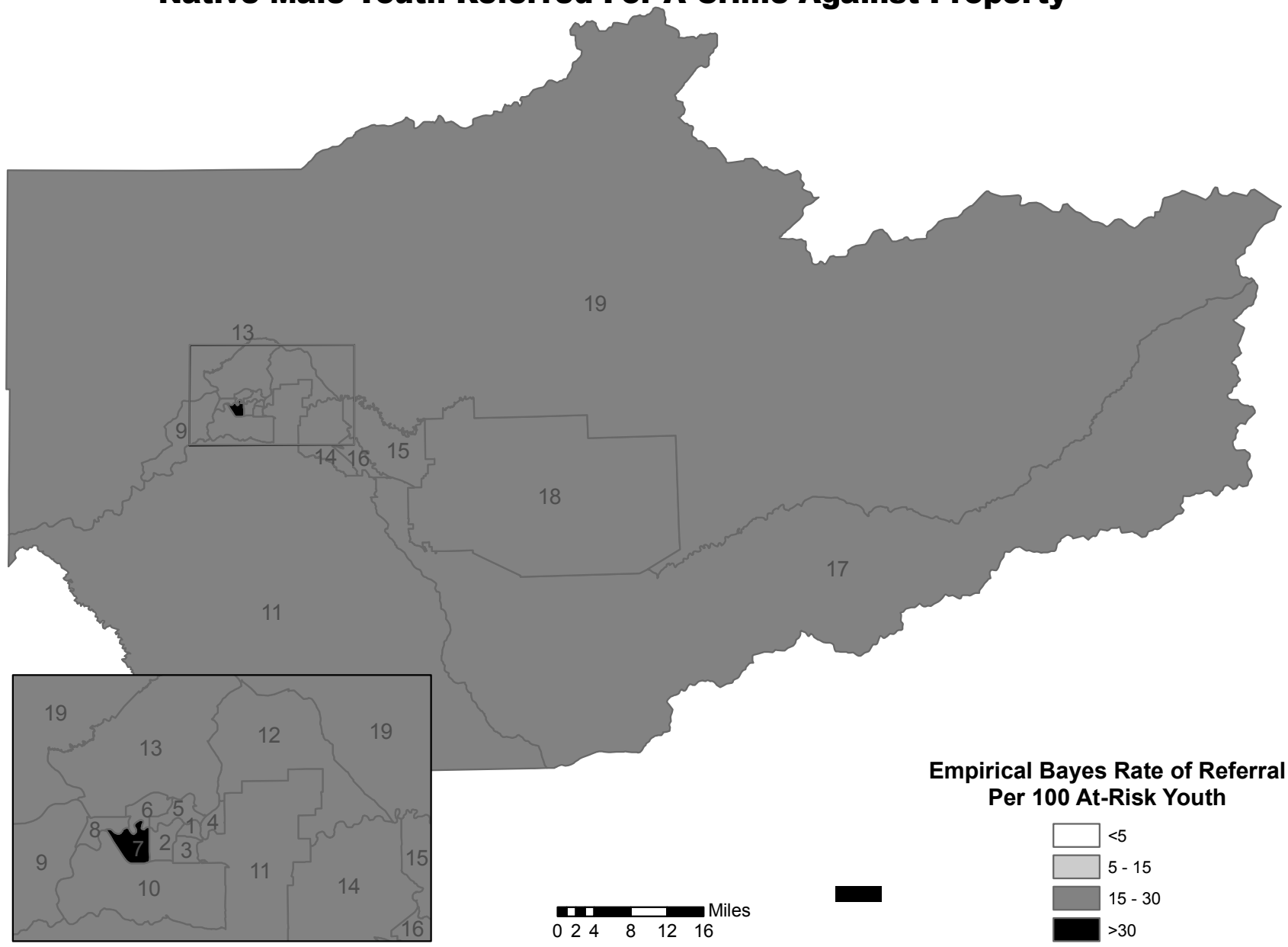


Figure 85. Empirical Bayes Rate of Referral By Census Tract - Native Male Youth Referred For Other Criminal Offense Types

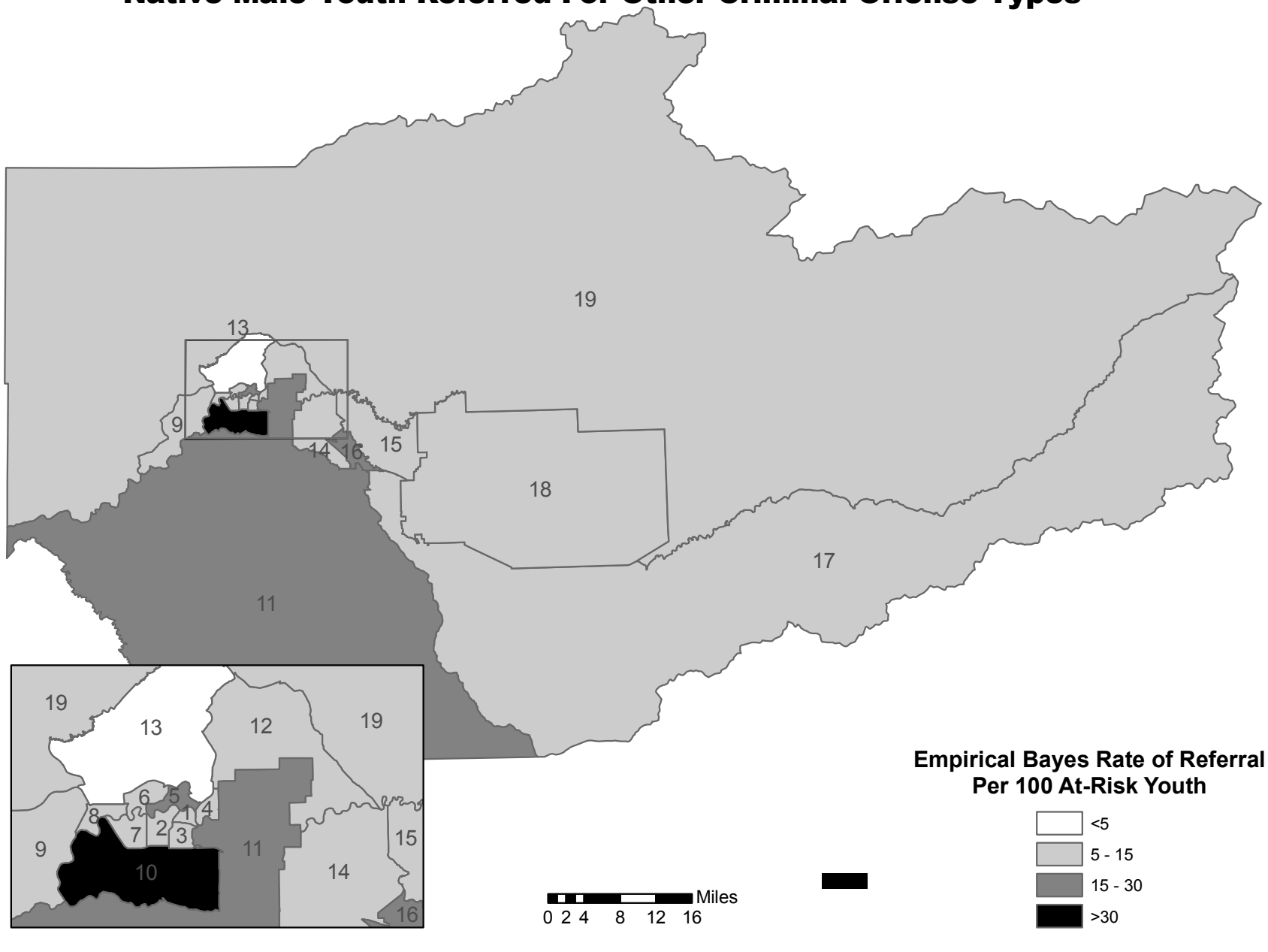


Figure 86. Empirical Bayes Rate of Referral By Census Tract - Native Male Youth Referred For A Probation or Conduct Violation

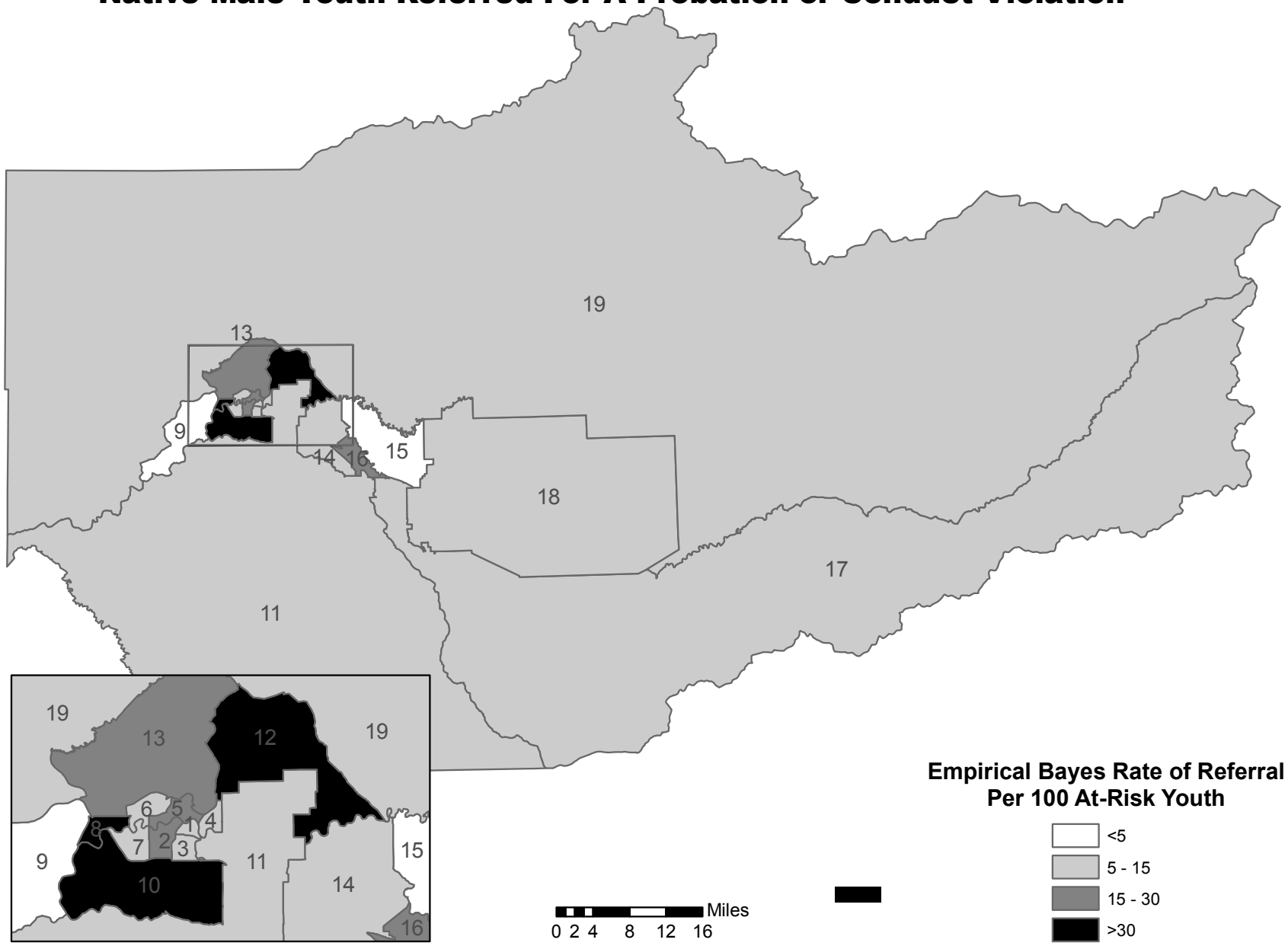


Figure 87. Empirical Bayes Rate of Referral By Census Tract - Native Female Youth Referred For Any Referral Type

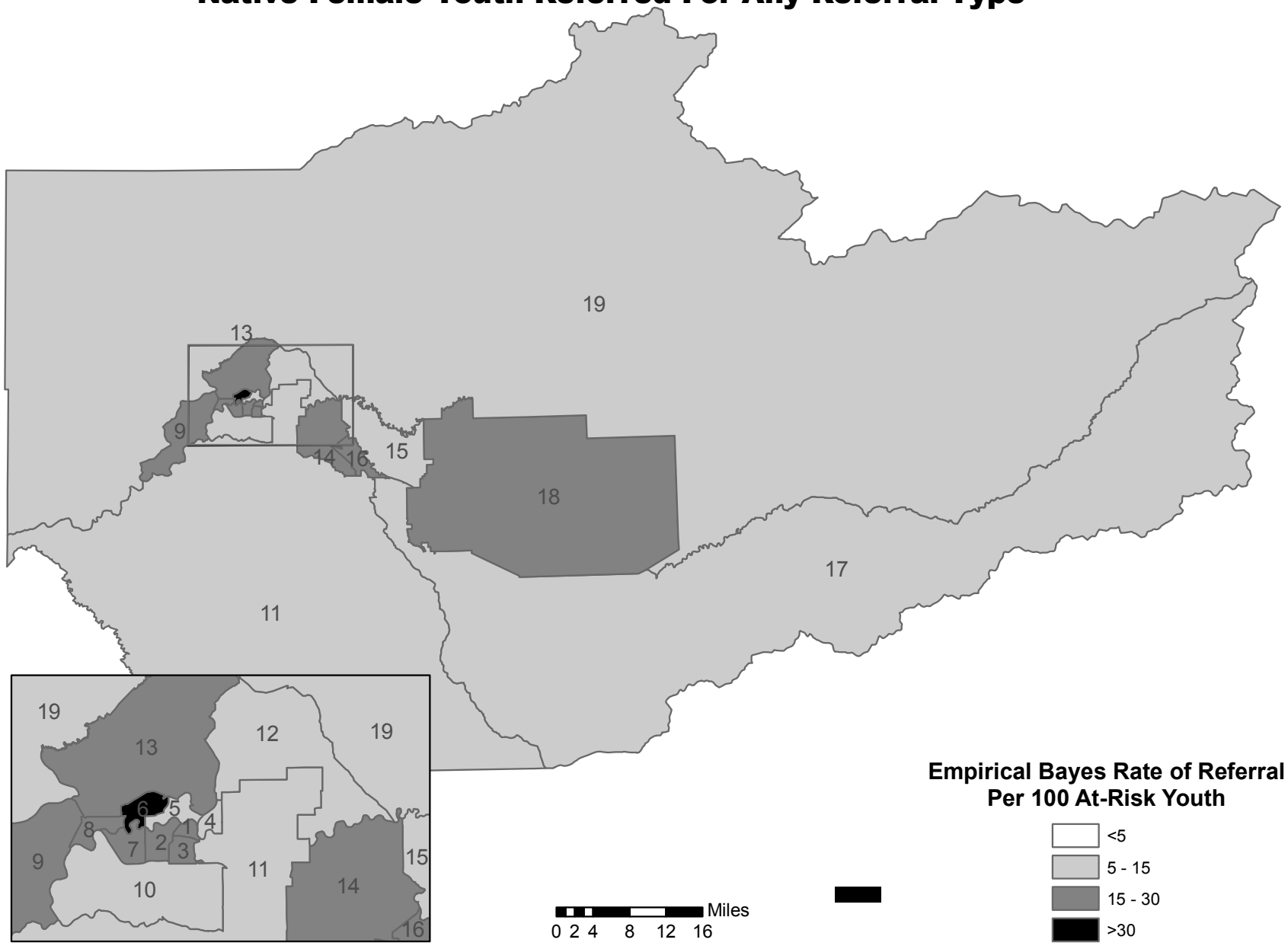


Figure 88. Empirical Bayes Rate of Referral By Census Tract - Native Female Youth Referred For A Crime Against A Person

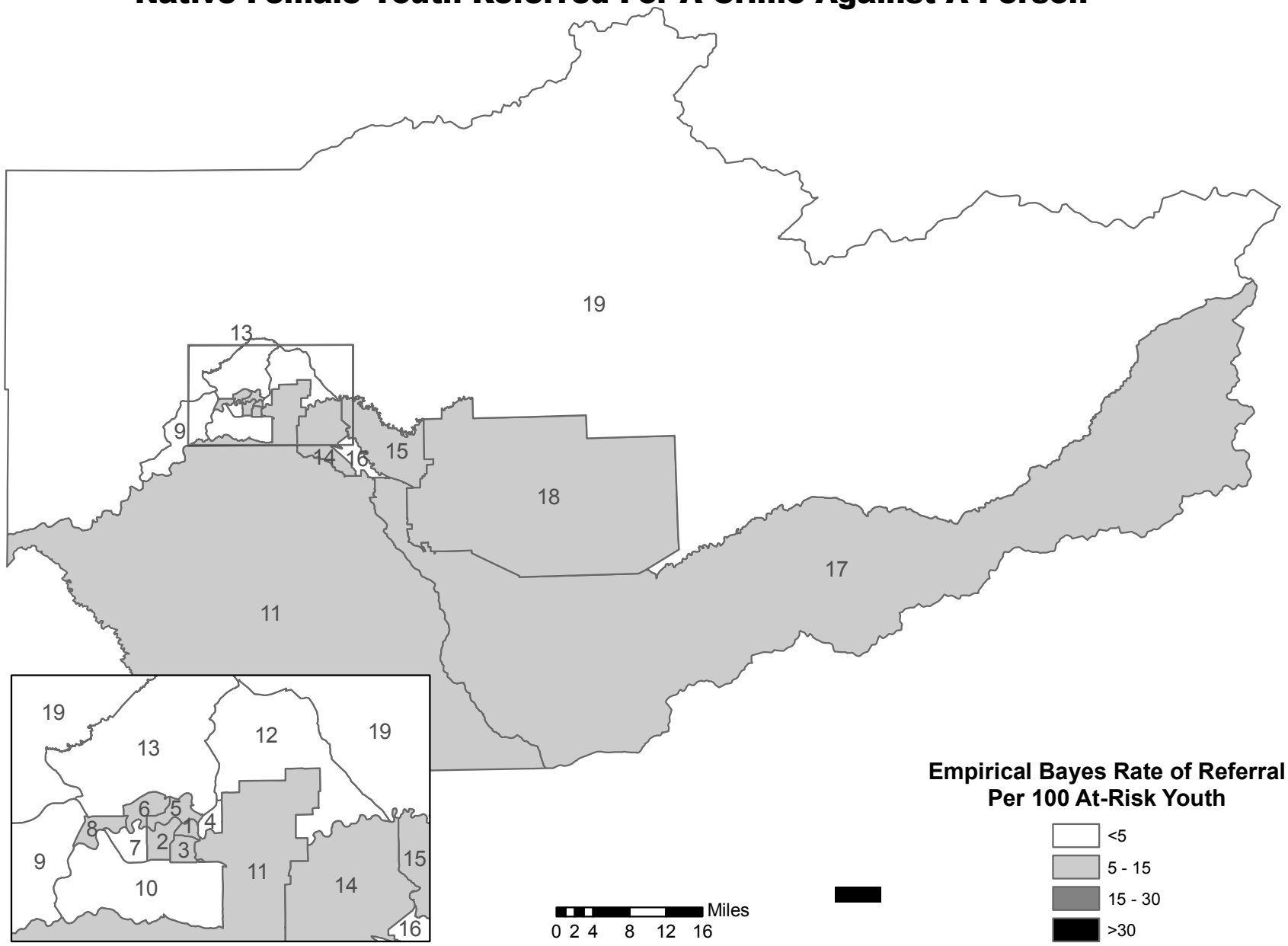


Figure 89. Empirical Bayes Rate of Referral By Census Tract - Native Female Youth Referred For A Crime Against Property

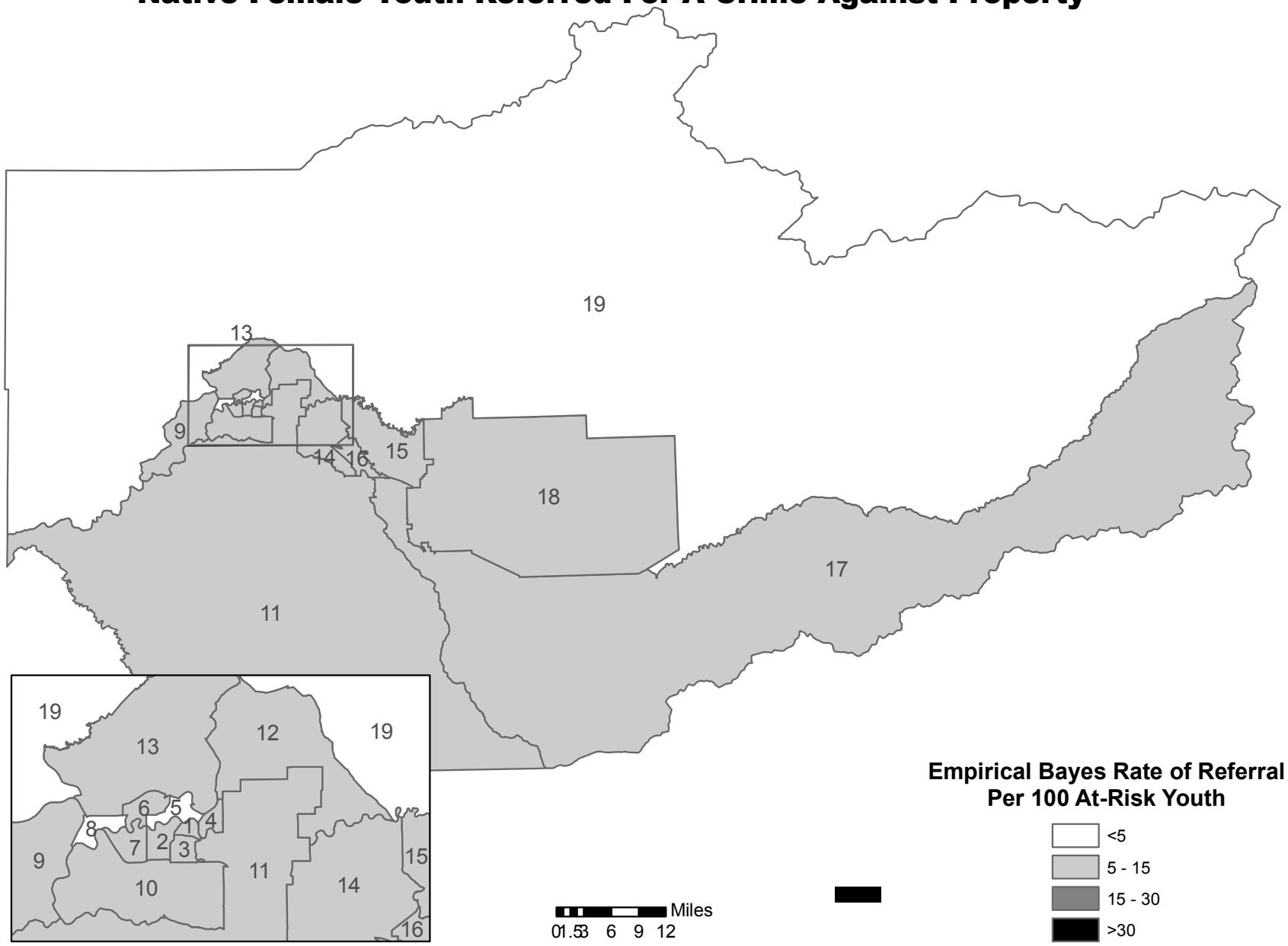


Figure 90. Empirical Bayes Rate of Referral By Census Tract - Native Female Youth Referred For Other Criminal Offense Types

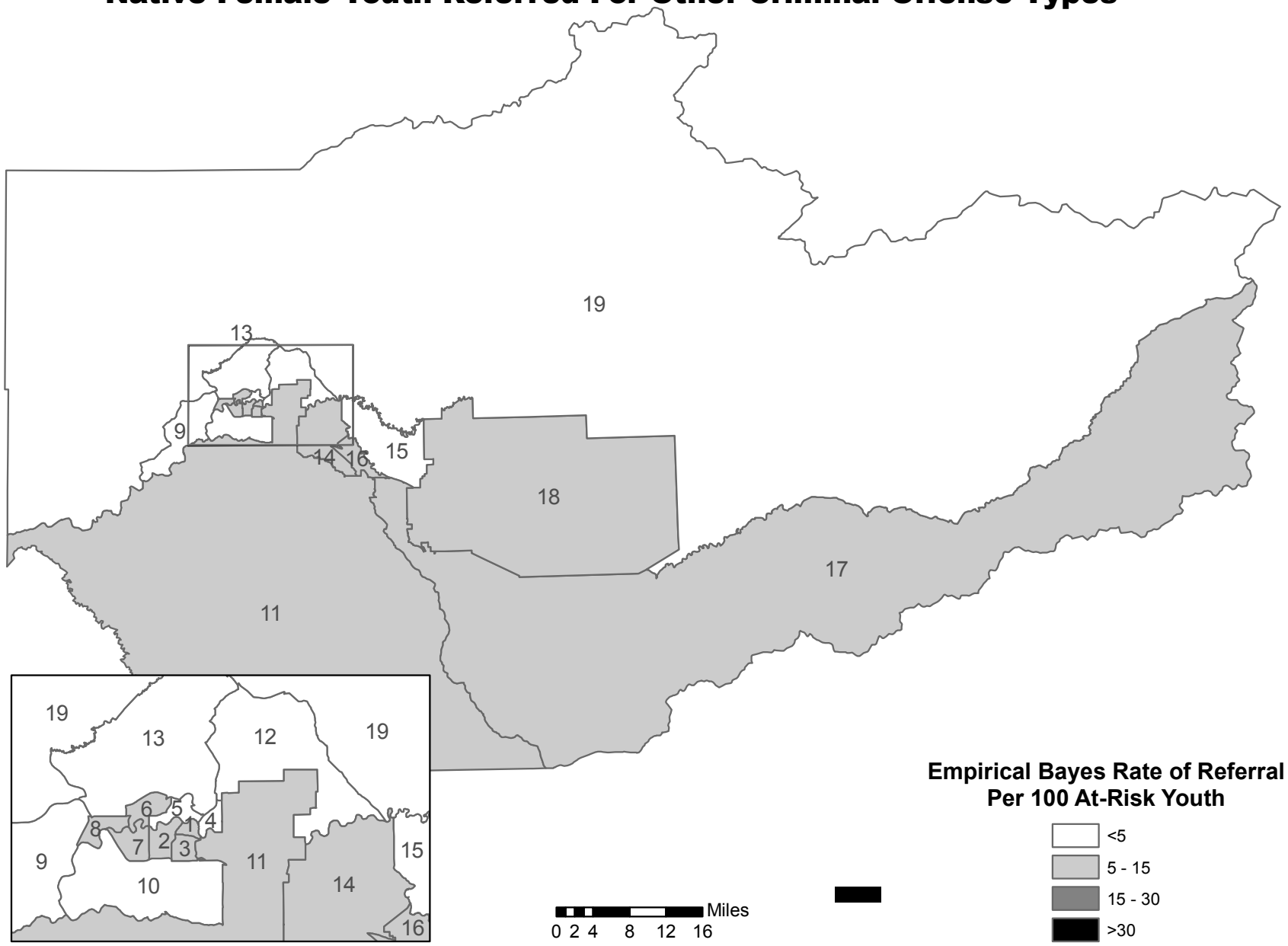


Figure 91. Empirical Bayes Rate of Referral By Census Tract - Native Female Youth Referred For A Probation or Conduct Violation

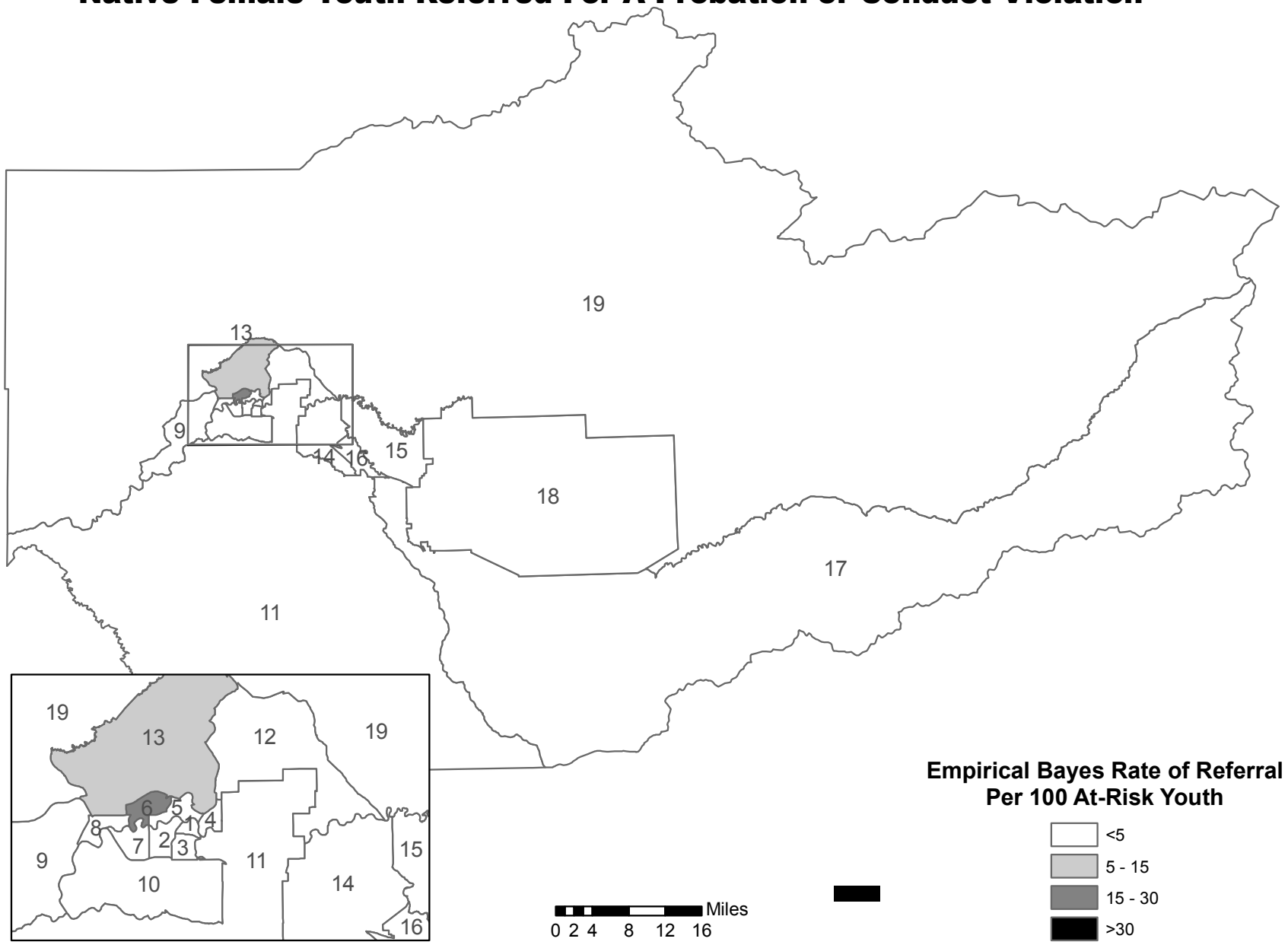


Figure 92. Empirical Bayes Rate of Referral By Census Tract - Black Youth Referred For Any Referral Type

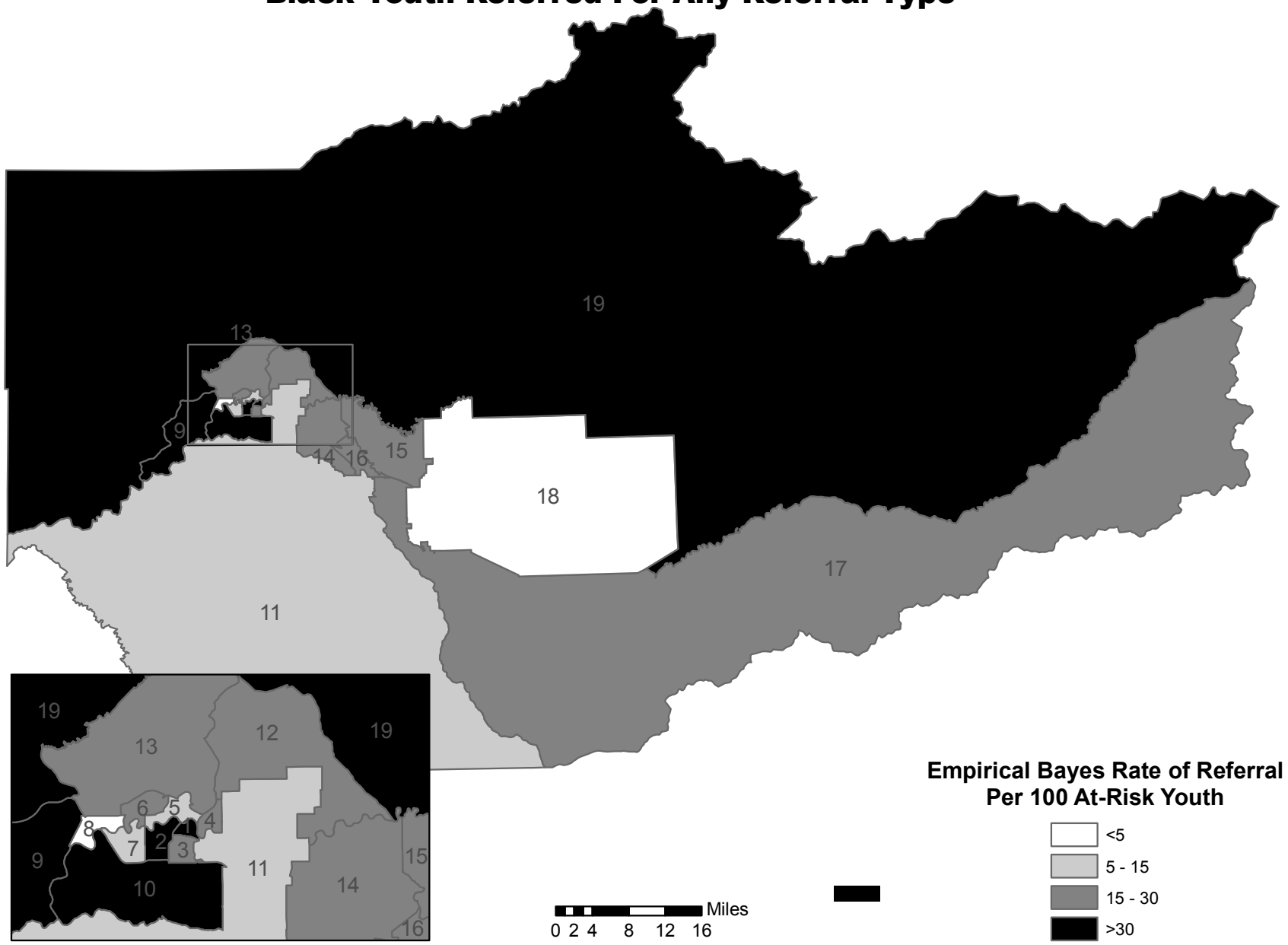


Figure 93. Empirical Bayes Rate of Referral By Census Tract - Black Youth Referred For A Crime Against A Person

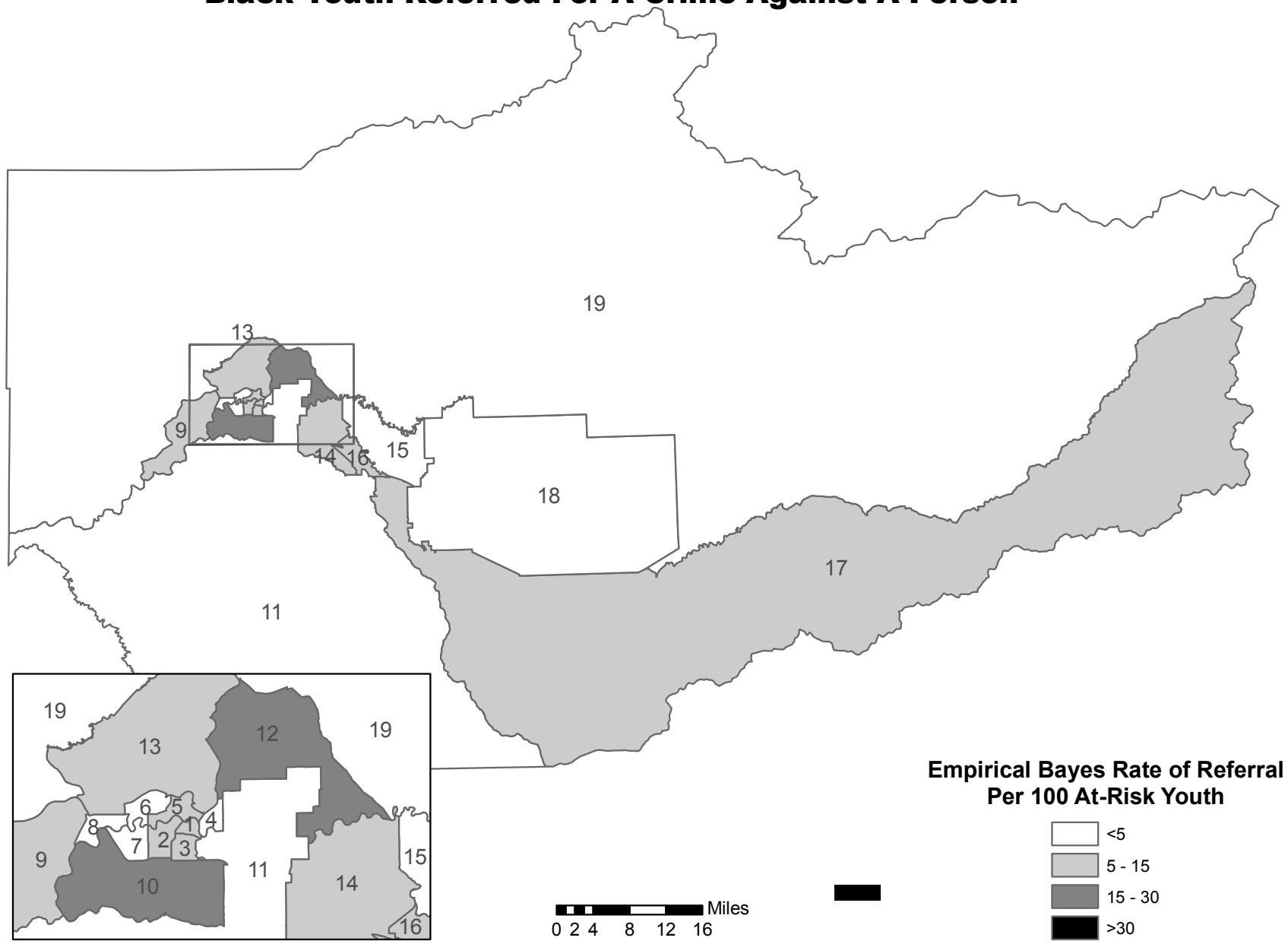


Figure 94. Empirical Bayes Rate of Referral By Census Tract - Black Youth Referred For A Crime Against Property

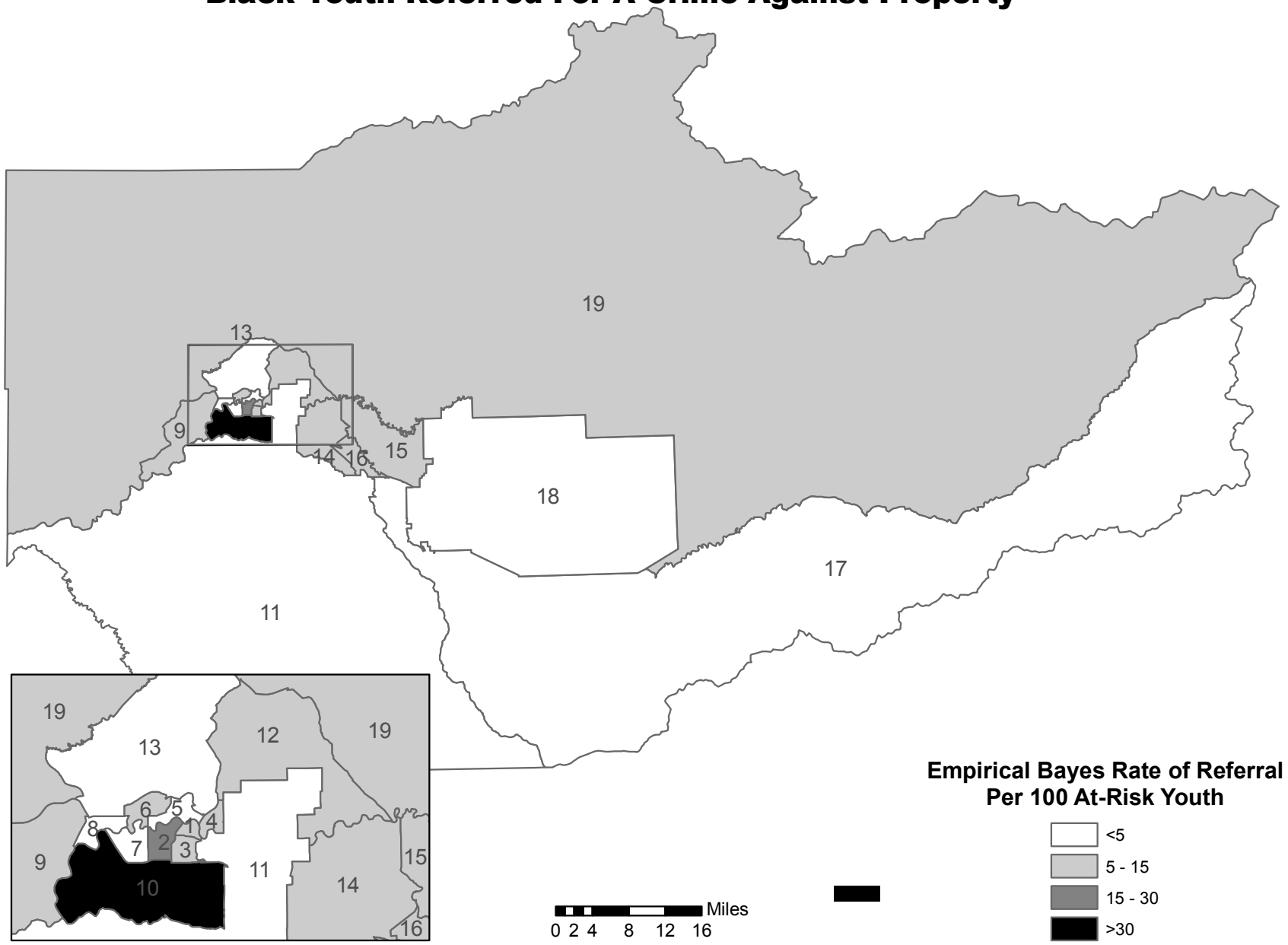


Figure 95. Empirical Bayes Rate of Referral By Census Tract - Black Youth Referred For Other Criminal Offense Types

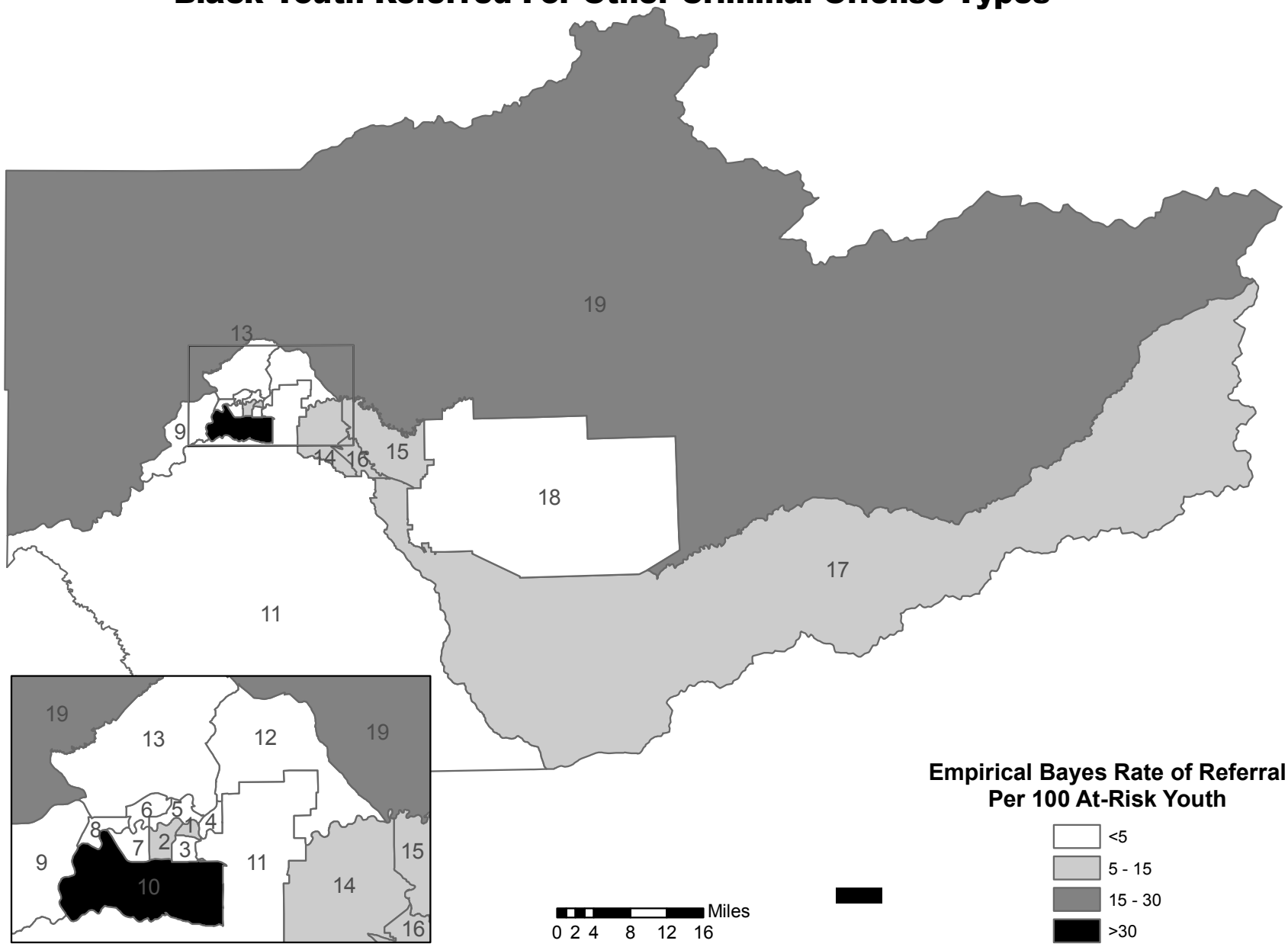


Figure 96. Empirical Bayes Rate of Referral By Census Tract - Black Youth Referred For A Probation or Conduct Violation

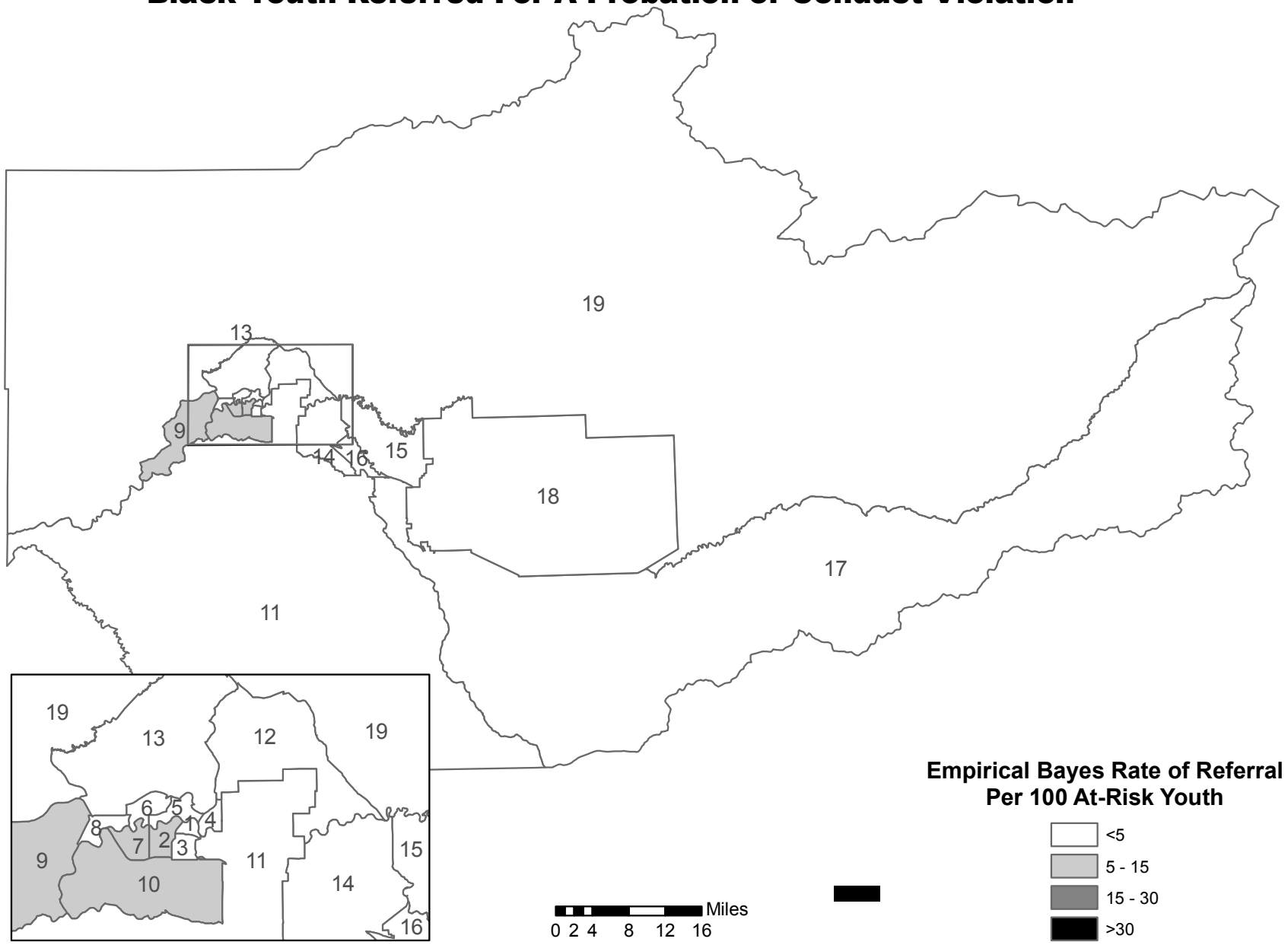


Figure 97. Empirical Bayes Rate of Referral By Census Tract - Black Male Youth Referred For Any Referral Type

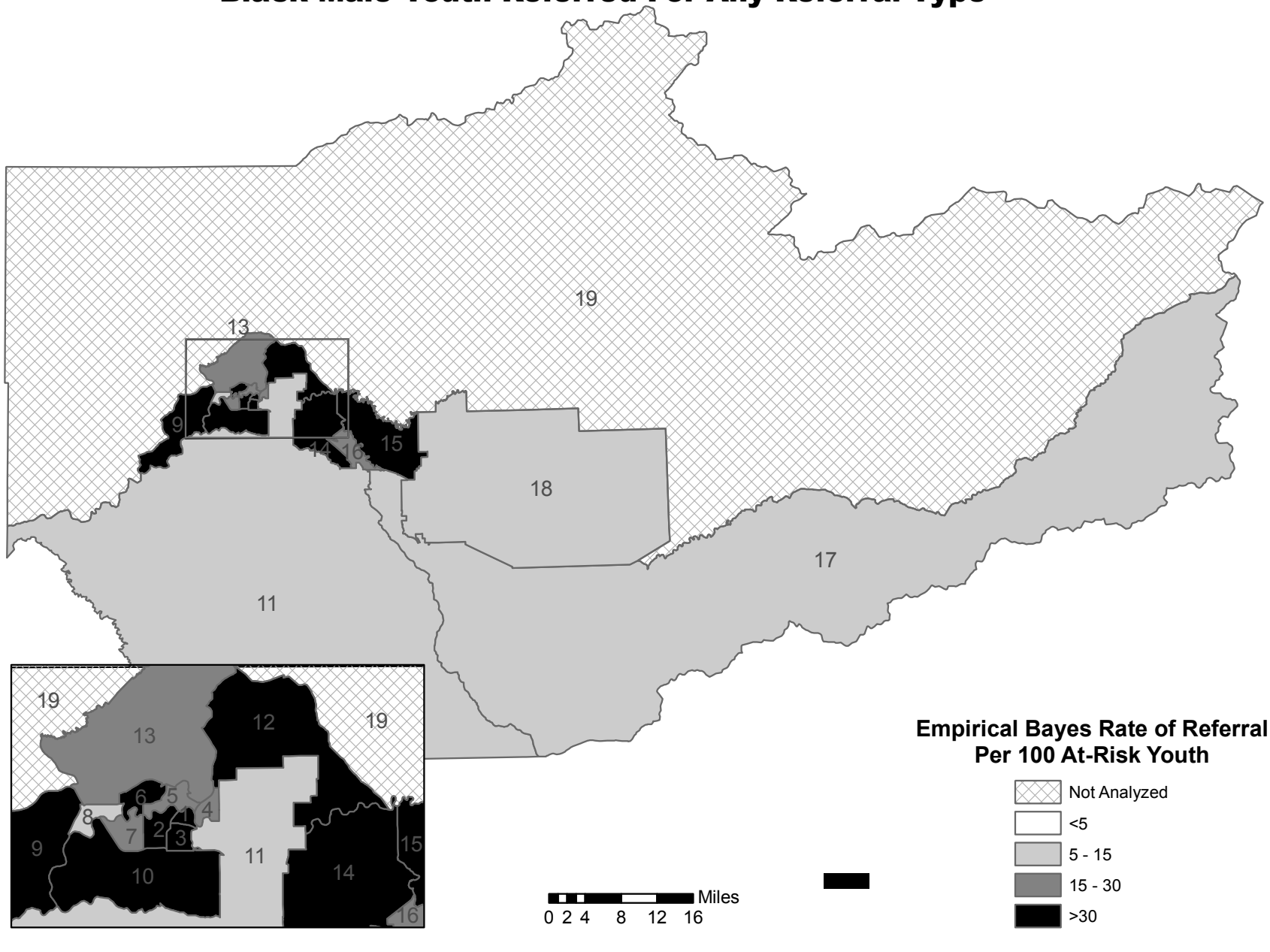


Figure 98. Empirical Bayes Rate of Referral By Census Tract - Black Male Youth Referred For A Crime Against A Person

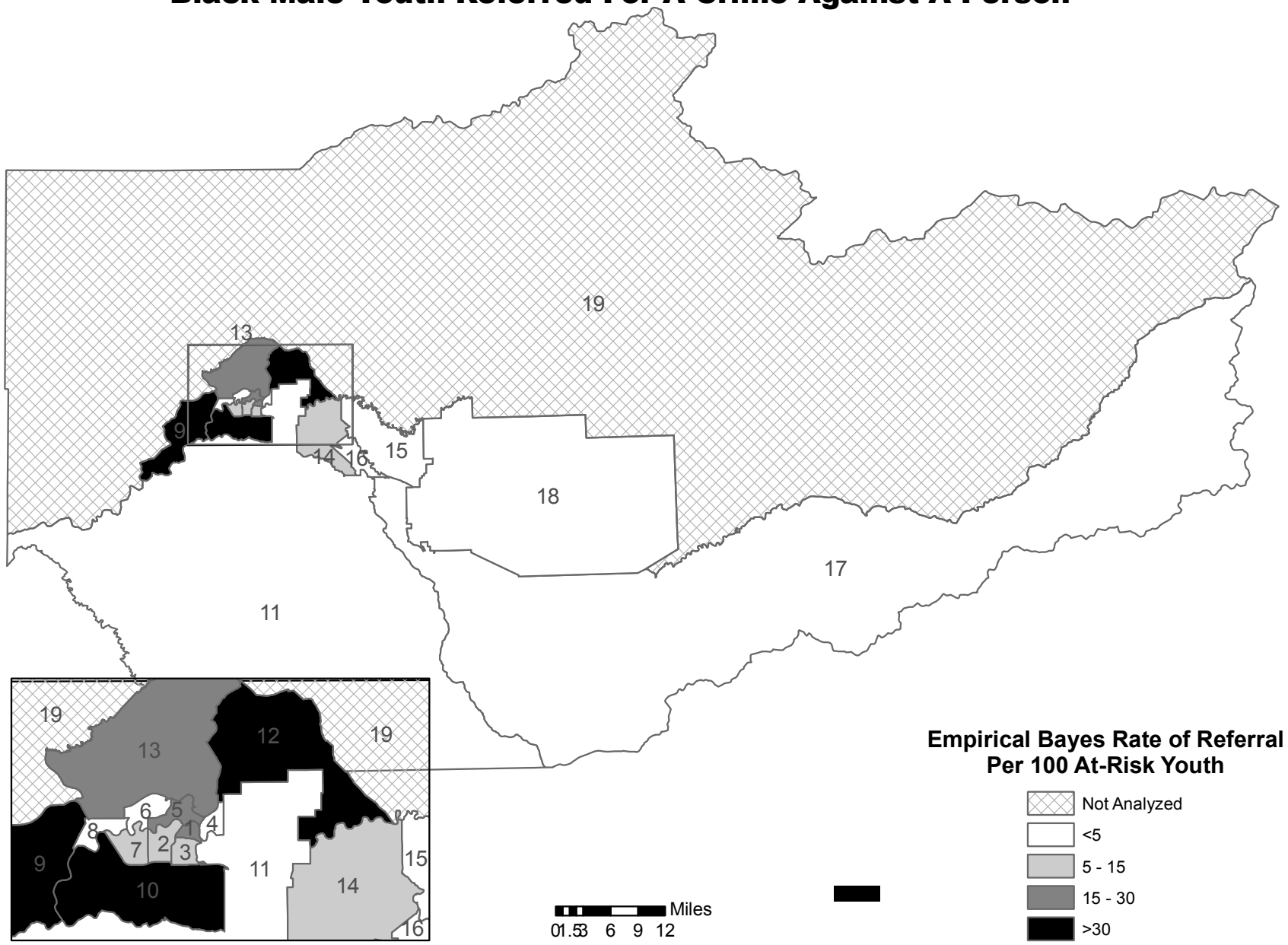


Figure 99. Empirical Bayes Rate of Referral By Census Tract - Black Male Youth Referred For A Crime Against Property

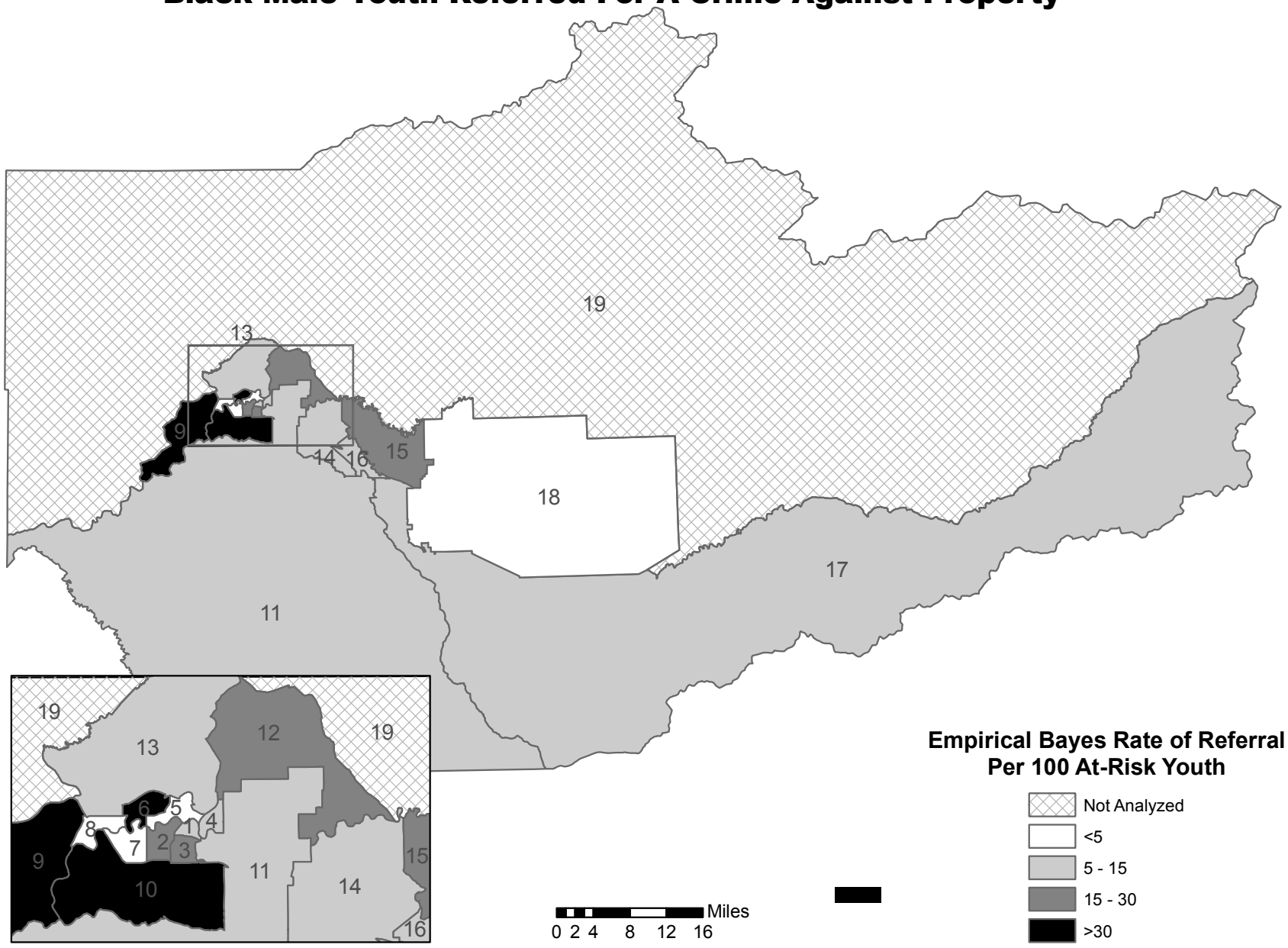


Figure 100. Empirical Bayes Rate of Referral By Census Tract - Black Male Youth Referred For Other Criminal Offense Types

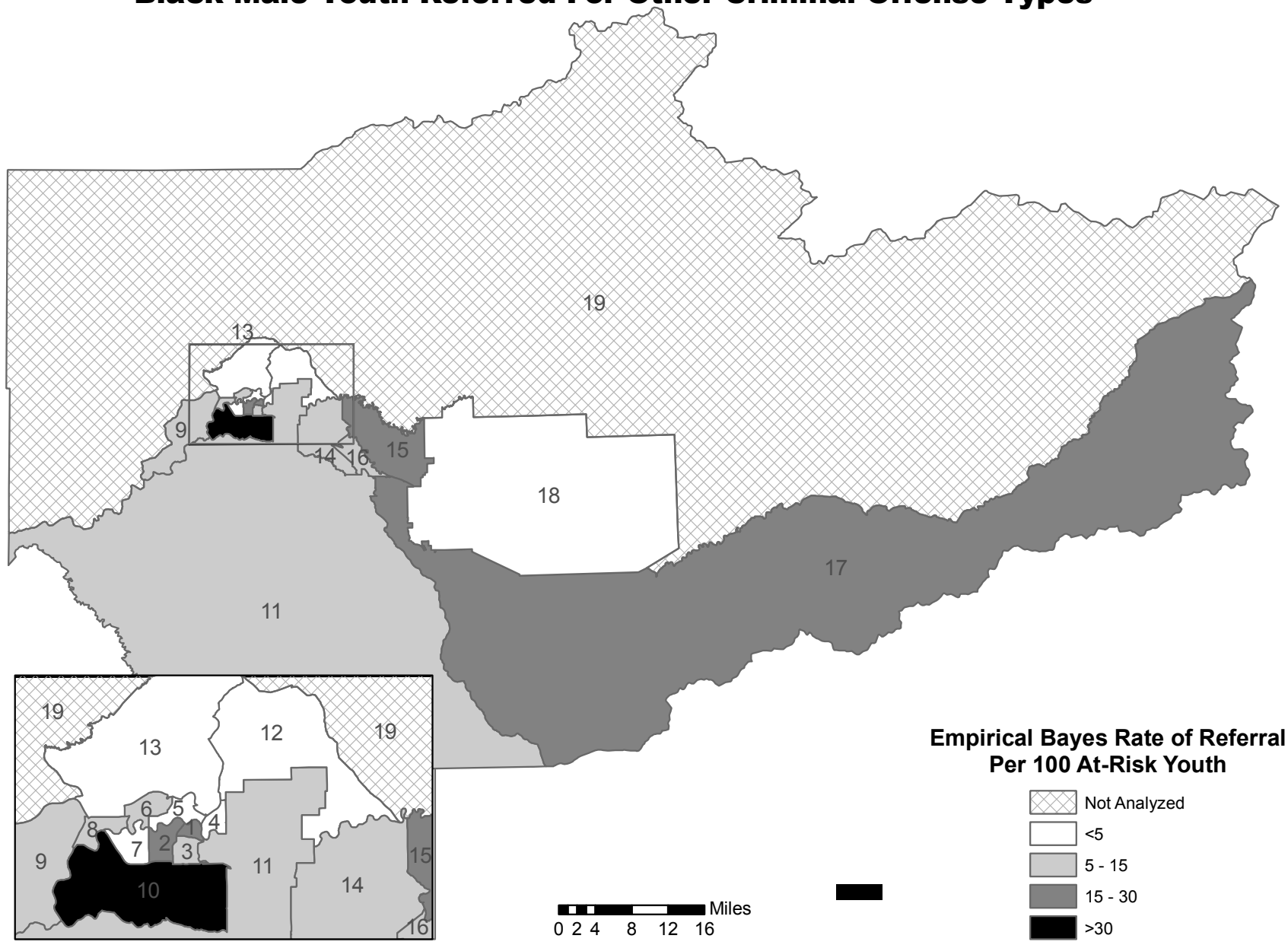


Figure 101. Empirical Bayes Rate of Referral By Census Tract - Black Male Youth Referred For A Probation or Conduct Violation

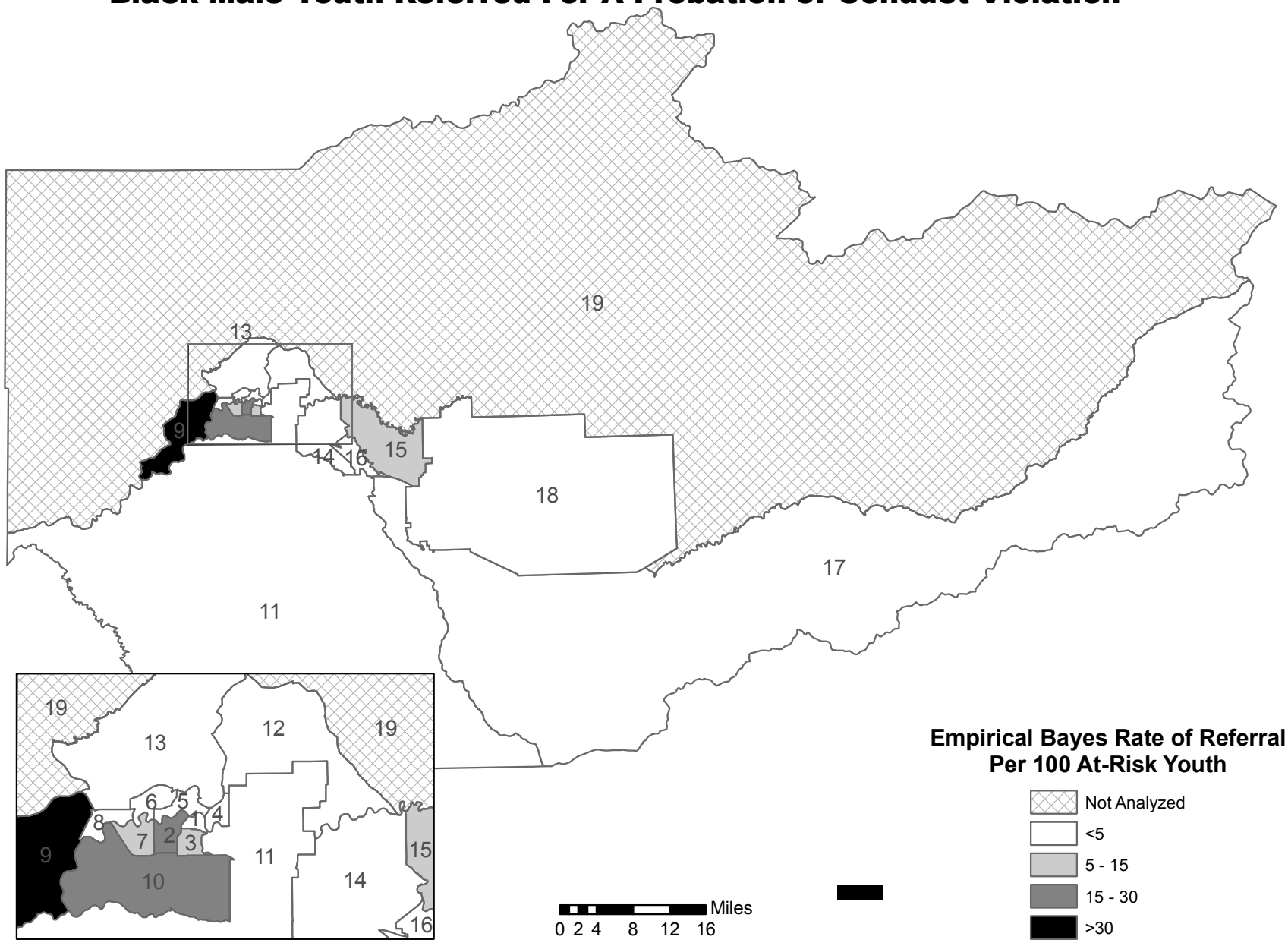


Figure 102. Empirical Bayes Rate of Referral By Census Tract - Black Female Youth Referred For Any Referral Type

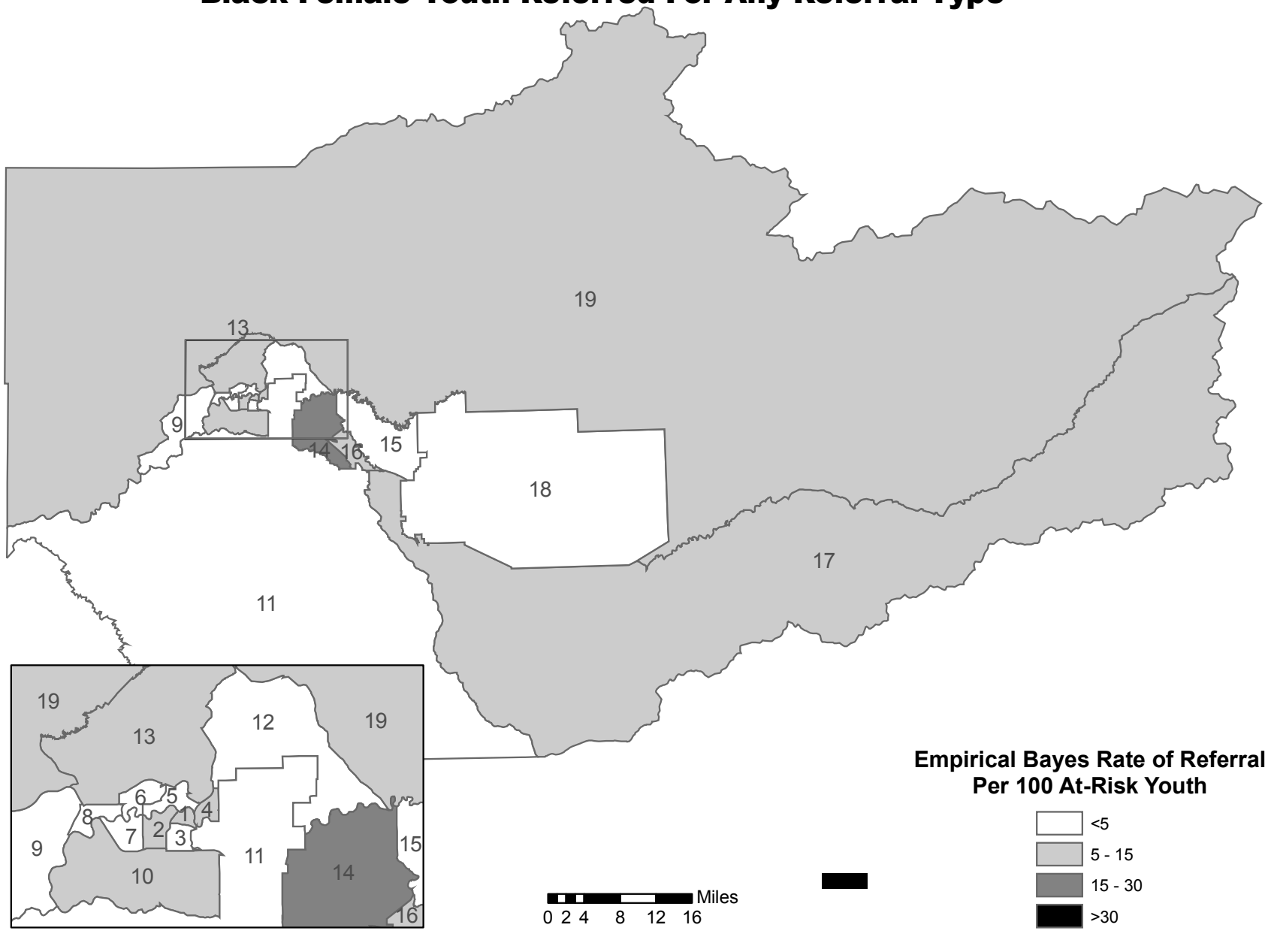


Figure 103. Empirical Bayes Rate of Referral By Census Tract - Black Female Youth Referred For A Crime Against A Person

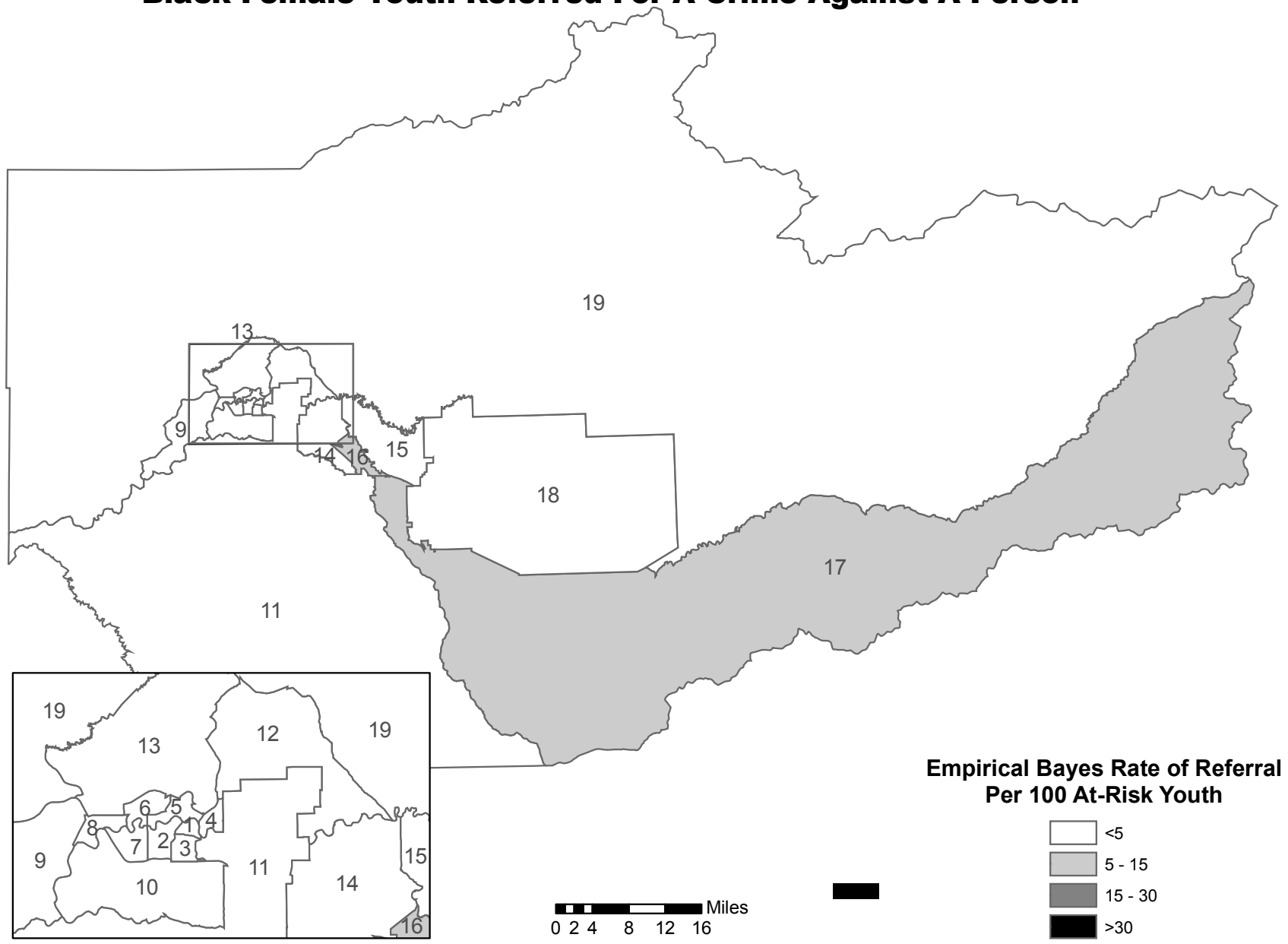


Figure 104. Empirical Bayes Rate of Referral By Census Tract - Black Female Youth Referred For A Crime Against Property

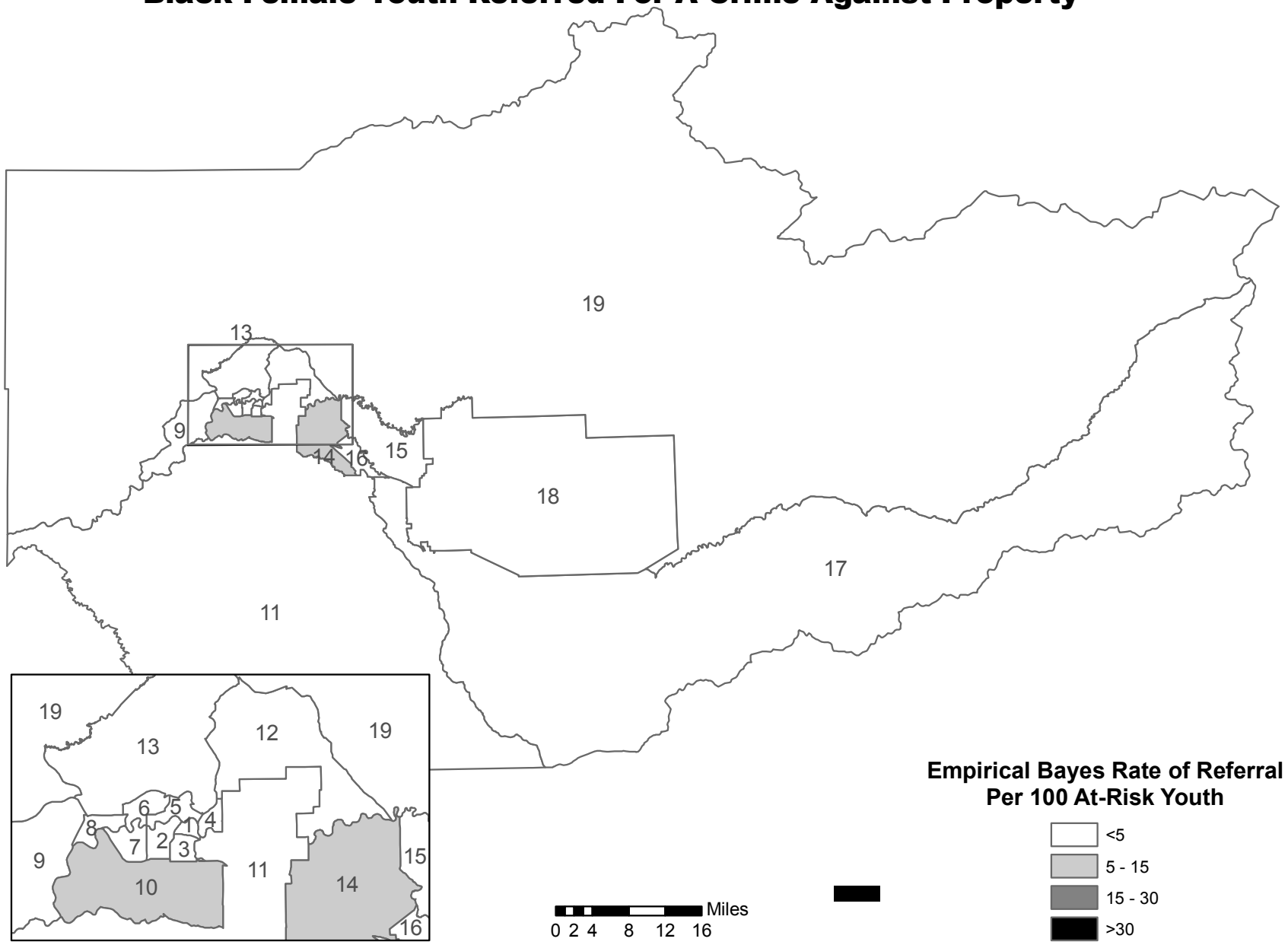


Figure 105. Empirical Bayes Rate of Referral By Census Tract - Black Female Youth Referred For Other Criminal Offense Types

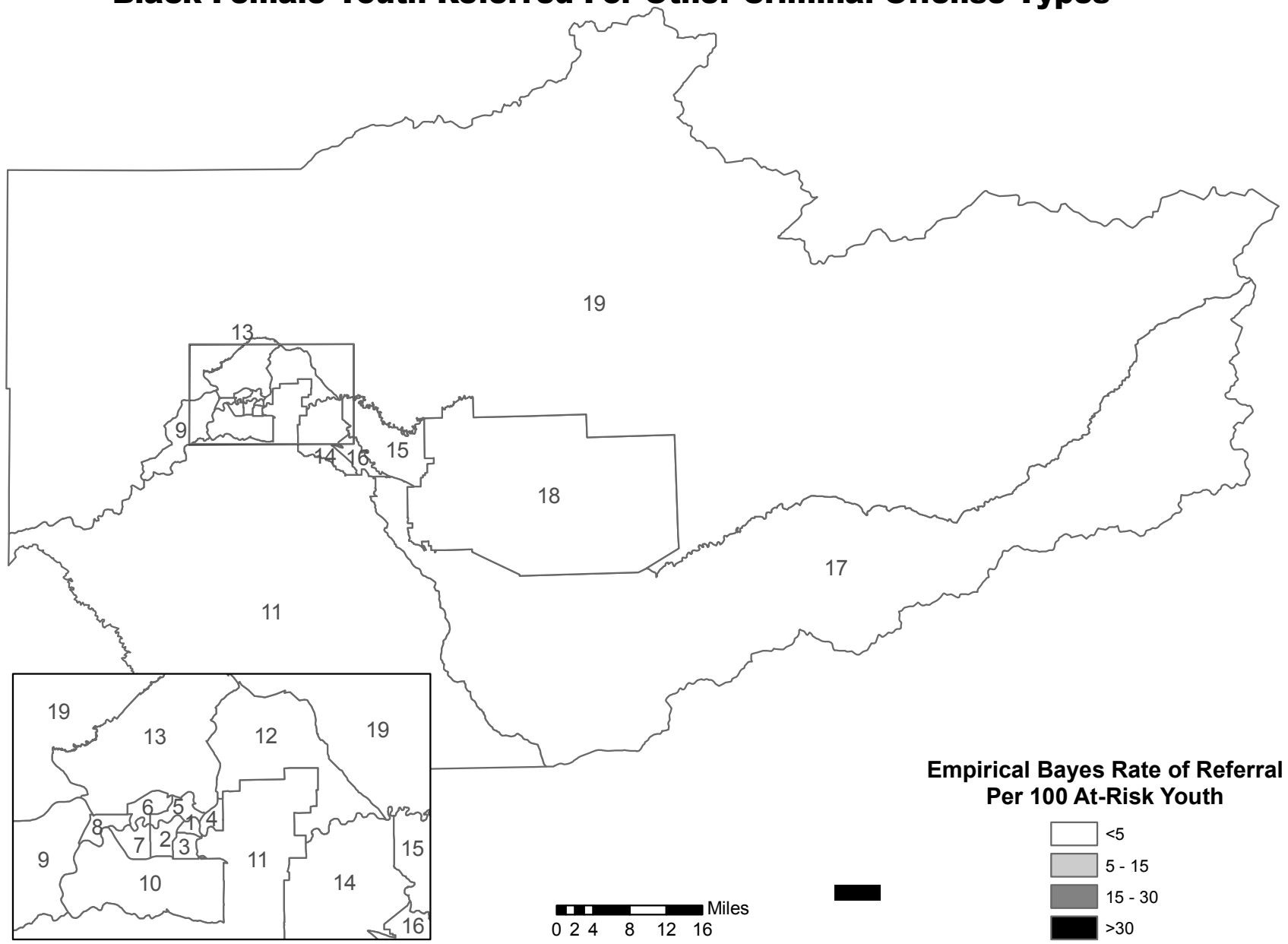


Figure 106. Empirical Bayes Rate of Referral By Census Tract - Black Female Youth Referred For A Probation or Conduct Violation