

The Identification Standard of “Serious Circumstances” in the Crime of Infringing Human Genetic Resources

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Abstract. As a condition for the crime of infringing human genetic resources, the “serious circumstances” are relatively vague in terms of concrete connotation and judgment criteria. In order to ensure the accuracy of judicial determination, it needs to be interpreted by legal hermeneutics. The “serious circumstances” in the crime of infringing human genetic resources should be located as “objective exceeding elements” in the criminal constitution system. The legal interests of the crime of infringing human genetic resources are “public health” and “security and administration order of public health”, and the bottom criterion of infringement of it is abstract danger. Based on this, “serious circumstances” should refer to the danger of illegal utilization of human genetic resources, and be specifically identified from both subjective and objective aspects.

Keywords: The Crimes of Infringing Human Genetic Resources; Serious Circumstances; System Positioning; Legal Interest.

1. Problem Proposing

Human genetic resources are an important strategic resource concerning to public health, national security and public interests [1]. In order to strengthen the protection of human genetic resources, China has successively promulgated laws and regulations such as Regulation on the Administration of Human Genetic Resources and Biosecurity Law, regulating the infringement of human genetic resources from the administrative law level. Amendment (XI) to the Criminal Law (December 26, 2020) added Article 334(I), The crime of collecting human genetic resources and smuggling human genetic resources materials, preliminarily improving the administrative-criminal penalty connection in this area, providing a criminal law basis for punishing the crime of infringing human genetic resources security and improving the legislative system for the protection of human genetic resources. However, as the incrimination standard, “serious circumstances” are relatively vague in terms of concrete connotation and judgment criteria. In the administrative law, it is only based on “If a crime is constituted, criminal responsibility shall be investigated according to law” [2] and no specific applicable standards are specified. In practice, judicial officers cannot accurately grasp the boundary between crime and non-crime of infringement of human genetic resources, leading to a hidden danger of replacing punishment with punishment or replacing punishment with punishment, which makes it hard to play the role of criminal legislation in protecting human genetic resources. Therefore, it is necessary to clear the identification standard of “serious circumstances”.

Since there is neither relevant precedents nor judicial interpretation of this crime, legal hermeneutics can be applied as the analytical method. To explore the identification standard of “serious circumstances” in the crime of infringing human genetic resources, it can begin with positioning of “serious circumstances” in the criminal constitution system, based on the types of legal interests and the bottom criterion of infringement of it. In order to achieve the above objectives, the following aspects will be focused on: (1) the systematic positioning of “serious circumstances” in The crime of infringing human genetic resources; (2) The legal interests in The crime of infringing human genetic resources; (3) The bottom criterion of infringement of the legal interests; (4) The identification standard of “serious circumstances” in The crime of infringing human genetic resources.

2. The Systematic Positioning of “Serious Circumstances” in the Crime of Infringing Human Genetic Resources

In Criminal Law in China, “serious circumstances” are often used as the incrimination standard, as well as this crime. Thus, a corresponding position of it must exist in the criminal constitution system and affect the specific investigation content when convicted. To establish the identification standard of “serious circumstances” in this crime, the first to be grasped is its specific positioning in the criminal constitution system. In this regard, there are the following representative views in theory: Objective Punishment Condition Theory, Constitutive Elements Theory and Objective Exceeding Elements Theory. Based on the principle of restraint in criminal law and the legal interest protection demand of this crime, Objective Exceeding Elements Theory should be adopted.

First, it is unsuitable to adopt Objective Punishment Condition Theory for the systematic positioning of “serious circumstances”. This theory holds that “serious circumstances” itself is not a constitutive element of crime but an objective punishment condition, thus there is no need for the perpetrator to have a subjective understanding of it. [3] Under the circumstances that all constitutive elements are satisfied, as long as the result of “serious circumstances” is achieved, regardless of whether the perpetrator is intentional or negligent in “serious circumstances”, penalty shall be applied. [4] Accordingly, to identify the crime of infringing human genetic resources, the perpetrator shall realize his perpetrating act conforms to constitutive elements, and there is no need to have a subjective understanding of “serious circumstances” of the perpetrating act. Therefore, when identifying “serious circumstances”, only objective judgment is needed. However, it is inappropriate to exclude subjective factor in the identification of this crime. The pure implementation act of this crime poses little direct danger to public health or public interests. The danger of infringing of legal interest exists only when the human genetic resources involved are illegally used. In other words, the perpetrator may not be the one who utilize the human genetic resources involved illegally. If this theory is adopted, these unwitting or deceived actors will also be identified as perpetrator resulting in the improper expansion of the criminal circle and violating the principle of restraint in criminal law.

Second, it is unsuitable to adopt Constitutive Elements Theory for the systematic positioning of “serious circumstances”. This theory puts forward that “serious circumstances” belongs to the constitutive element. Even if it is caused by a third person, it is also the result of a certain relationship with the perpetrator's behavior. Its danger level has no essential difference with the perpetrator's own behavior. Therefore, “serious circumstances” should be within the scope of perpetrator's understanding. [5] According to this theory, the perpetrator will naturally understand the danger caused by his perpetrating act. Similarly, when judging “serious circumstances”, it is necessary to identify from both subjective and objective aspects. Meanwhile, as the constitutive element, the subjective understanding of “serious circumstances” should be clear as well. However, there is a significant difference between the perpetrating act of this crime and the danger of illegal utilization of human genetic resources. It is difficult to identify whether the perpetrator can have a clear understanding of the danger caused. The legal interests of this crime involve public health and social public interests. The practical danger is difficult to control and need to be prevented in advance. If this theory is adopted, it will lead to the increase of the threshold of subjective level. This limit the application of this crime too much, and cannot achieve the purpose of protecting the legal interests and risk prevention of this crime well.

Third, it is suitable to adopt Objective Exceeding Elements Theory for the systematic positioning of “serious circumstances”. It points out that “serious circumstances” are not independent of the constitutive element, but do not require the perpetrator have an attitude of understanding and hope or laissez-faire. However, in the intentional crime, the perpetrator should at least have the possibility of foreseeing the dangerous results such as “serious circumstances”. [6] Based on this theory, while the perpetrating act objectively meets the requirement of “serious circumstances”, there is also the possibility of foreseeing it subjectively. When identifying “serious circumstances”, both subjectivity and objectivity shall be taken into consideration, but the subjective identification criteria can be

appropriately relaxed. Adopting this theory can not only prevent the improper expansion of the scope of application of criminal law caused by completely ignoring subjective factors, but also meet the protection requirements of the legal interests of this crime.

3. The Legal Interests in the Crime of Infringing Human Genetic Resources

In Criminal Law in China, “serious circumstances” is “a comprehensive subjective and objective fact necessary for the establishment of a crime, which indicates the degree of infringement of legal interests”. [7] It serves for the protection of legal interests. Therefore, the legal interests of the crime should be first determined when identifying the “serious circumstances” of the crime of infringing human genetic resources.

3.1. Existing Theoretical Controversy

The crime of infringing human genetic resources is the response of the Criminal Law to the provisions on the management of human genetic resources in laws and regulations such as Regulation on the Administration of Human Genetic Resources and Biosecurity Law. It locates in the Section 5 “Crimes of Endangering Public Health”, Chapter VI Crimes of Disrupting the Order of Social Administration, and the mission of “safeguarding national security and biosecurity and preventing biological threats” [8] is given in the legislative process. Thus, various discussions on its legal interests are triggered. In general, it is theoretically believed that the legal interests of this crime mainly include the following categories: (1) Individual legal interests: individual genetic security; (2) Social legal interests: public health, social security and management order (public health security and management order), customs supervision system; (3) National legal interests: national security (especially biosecurity). Among them, “public health” and “public health security and management order” can be directly interpreted through the provisions “endangering public health or social and public interests” and the position in Criminal Law. Therefore, there is almost no controversy about these two legal interests while others are the opposite.

First, for the legal interests of national security, the academic community generally believes that it should be included in the scope of protection of this crime. However, current provision does not provide for this, which is considered precisely where the legislation needs to be improved. [9][10][11] On the one hand, from the perspective of the administrative-criminal penalty connection, Regulation on the Administration of Human Genetic Resources and Biosecurity Law all consider “national security” as one of the protection objects.[1] [12] Current Criminal Law excludes it from legal interests, undermining the coordination between criminal law and relevant administrative law. [9] On the other hand, under the background of increasing biosecurity risks, the risks brought by the illegal utilization of human genetic resources have broken through the threat to the personal and social interests of citizens, and brought great hidden dangers to the entire national security. [13] Thus, it is unreasonable to exclude national security legal interests.

Second, for individual legal interests, proponents believe that this is because human genetic resources come from each individual, reflecting the individual's genetic characteristics, and thus related to the individual's genetic security. [10]

Thirdly, for the legal interests of the customs supervision system, supporters point out that according to the Customs Law, “as long as it violates customs laws and regulations, evades customs supervision, and transports, mails, and carries materials of our human genetic resources out of the country, these three conditions are met, that is, it constitutes a smuggling act” [14]. Therefore, the customs supervision system shall be within the scope of the legal interests of this crime.

3.2. Determination of Legal Interests

Based on the purpose of determining the identification standard of “serious circumstances” in The crime of infringing human genetic resources, the legal interests of this crime should be limited to “public health” and “security and administration order of public health”. The identification standard

of “serious circumstances” is actually a legal interpretation issue which cannot be separated from the current legislation itself. Because of this, the exploration of legal interests to serve this purpose should also be carried out around the current legislation. In the interpretation of criminal law provisions, it is generally believed that the following order can be taken: (1) To determine the general boundary of interpretation by literal interpretation; (2) To adjust the scope according to the legislative purpose; (3) To determine the content of normative intention by system interpretation and purpose interpretation. [15] Therefore, the determination of legal interests of this crime can be carried out in turn from “literal interpretation-system interpretation-purpose interpretation” [16].

First, according to the literal interpretation, the discussion of the legal interests of this crime should focus on “public health or social and public interests”. In the process of interpretation, it should start from the meaning of the text and take the “possible meaning” of provisions as the interpretation scope. [17] According to the provisions: (1) “In violation of the relevant provisions issued by the state” mainly corresponds to Regulation on the Administration of Human Genetic Resources and Chapter VI of Biosecurity Law, “Security of Human Genetic Resources and Biological Resources”. Accordingly, the state regulates human genetic resources in order to maintain public health, national security and social public interests. [10] The legal interest of this crime should be discussed within this scope. (2) It is not necessarily worthy of criminal law regulation if just violating the order of human genetic resources administration order. It also needs “endangering public health or social and public interests, and the circumstances are serious”. Among all the contents to be regulated by the human genetic resource management order, the legislation chooses “public health or social public interest” for protection. Therefore, when discussing the legal interests of this crime, it should not deviate from “public health or social and public interests”.

Second, according to the system interpretation, the legal interests of this crime should be “public health” and “security and administration order of public health”. In the system of the specific provisions of the criminal law, this crime locates in the Section 5 “Crimes of Endangering Public Health”, Chapter VI Crimes of Disrupting the Order of Social Administration. On the one hand, to make a direct analysis, in this chapter, the legal interests are mainly related to public health and public health security and the corresponding public health administration order. For example, “public health and national health department of blood collection, supply administrative system” of The crime of illegal collection, supply of blood, production and supply of blood products; “public health security and national regulation on the prevention and control of infectious diseases” of The crime of obstructing the prevention and control of infectious diseases; “national administrative system for the prevention and treatment of infectious diseases” of The crime of spreading infectious disease strains and toxic species. The essential danger of this crime is that through the illegal utilization of human genetic resources in China, viruses, bacteria and other microorganisms specially designed for Chinese citizens have been developed, resulting in a certain scale of public health emergency, endangering public health, public health security and administration order. On the other hand, to exclude other controversial legal interests, (1) individual genetic security and customs supervision system are not directly relate to “public health” and “social administration”; (2) the crimes of endangering national security give priority to the application of felony in the setting of legal punishment, which is contrary to the sentencing rules of this crime giving priority to the application of misdemeanor, and the inclusion of national security legal interests is inconsistent with the sentencing rules of general crimes endangering national security. Therefore, the legal interests of this crime should be limited to “public health” and “security and administration order of public health”.

Finally, according to the purpose interpretation, determining “public health” and “security and administration order of public health” as the legal interests of this crime does not violate the legislative purpose. Legislator pointed out that the establishment of this crime is to safeguard national security and biosecurity. [8] On the one hand, from the perspective of the connotation of biosecurity, “the essence of the legal interest of biosecurity is human health and life security, and the specific development of biosecurity is manifested as major public health security and other specific contents” [18]. It can be seen that “public health” and “security and administration order of public health” are

actually consistent with the connotation of and is essentially the presentation of biosecurity legal interests. On the other hand, it can also guarantee national security. The typical case of the actual damage of infringing human genetic resources is that the perpetrator develops specific pathogens and biological weapons based on a country's human genetic resources and put them in the country, resulting in large-scale epidemics and other public health emergencies. From the perspective of infringement time, the first threat is to “public health” and “security and administration order of public health”, corresponding to biosecurity, followed by possible threat to other national security. In fact, biosecurity is an important part of national security. [19] Therefore, this legal interest has guaranteed the biosecurity in national security and regulated other types of national security that may be infringed in advance. To sum up, it is in line with the legislative purpose to take “public health” and “security and administration order of public health” as the legal interest of this crime.

4. The Bottom Criterion of Infringement of the Legal Interests

After determining that the legal interest of this crime, the minimum requirements for the regulation of legal interest infringement by criminal law should be further analyzed. “Serious circumstances” is the boundary between crime and non-crime, thus the key to identification is to determine its bottom line standard. In practice, the degree of infringement of legal interests from light to heavy can be divided into three levels: abstract danger, specific danger and actual damage, which correspond to abstract dangerous offense, specific dangerous offense and actual damage offense respectively. Therefore, the determination of the bottom line standard of “serious circumstances” of this crime is actually based on the reasonable choice of these three types of situations. For this crime, the bottom line should be “abstract danger”.

4.1. The Boundary of the Degree of Infringement of Legal Interests

Before defining the degree of infringement of legal interests of this crime, the boundary of three degrees of infringement of legal interests should be clarified first.

First, it is necessary to distinguish between actual damage offense and dangerous offense. The distinction between the two is obvious in the degree of infringement of legal interests, and the dangerous offense also has a unique legislative value orientation. On the one hand, the actual damage offense needs to cause actual damage results, while the dangerous offense requires danger to the legal interests but does not need to cause actual damage. On the other hand, in the legislative practice under the risk society background, the dangerous offense is a typical manifestation of the active preventive criminal law concept, which reflects the legislative thought of the early protection of legal interests. [20]

Second, the dangerous offense is also subdivided into abstract dangerous offense and specific dangerous offense. The two have different legislative considerations in the expression of criminal law provisions, the time of punishment, and the urgency of legal interest infringement, but comprehensive judgment should be made in the judgment. (1) In the expression of criminal law provisions, “danger” in abstract dangerous offense is not stipulated, while “danger” of specific dangerous offense is often clearly stipulated with symbolic expression such as “in a manner sufficient to threaten” “seriously endanger” “posing a real danger of” [21]. (2) At the point of punishment, abstract dangerous offense is more advanced and tends to be “the pre-stage of specific danger” [22]. (3) In terms of the urgency of the infringement of legal interests, specific dangerous offense requires a specific and highly urgent danger to the legal interests, and the absence of actual damage is only an accident. The judiciary needs to judge according to the situation. The urgency of abstract dangerous offense is relatively light, slow and urgent, which needs to be judged in combination with general social life experience. [23][24](4) In terms of legislative considerations, the result of infringement of legal interests is significant, the time point of early punishment is needed, or the difficult to prove the occurrence of actual results and specific dangers according to daily experience, as long as a certain act is carried out, it will cause actual harm or specific danger, are all reasons for taking a crime as abstract dangerous offense. [21]

However, if the identification of dangerous offense as abstract dangerous offense will lead to excessive punishment or make the punishment scope too wide, it should be classified as specific dangerous offense. [24] However, the above differences are distinguished as a whole, and individual cases cannot be excluded. Therefore, when defining whether it is abstract dangerous offense or specific dangerous offense, it is still necessary to judge it in combination with the crime itself.

4.2. The Comparison of Kind of Crime

Due to the limited judicial precedent and theoretical research, it is difficult to fully reason directly about the bottom line standard of “serious circumstances”. Based on this, it is advisable to use the comparison of similar crimes as a reference to help systematically analyze the “serious circumstances” of this crime.

Considering that the legal interest of this crime is “public health” and “security and administration order of public health”, combined with the position of this crime in the specific provisions of criminal law, Article 334 Crime of illegal collection, supply of blood, production and supply of blood products, Article 330 Crime of obstructing the prevention and control of infectious diseases and Article 331 Crime of spreading infectious disease strains and toxic species, which are similar to this crime, are selected as the kind of crime for comparison. In terms of comparative content, the first statutory sentence and incrimination standard, both of which can reflect the degree of infringement of legal interests at the time of conviction, are chosen as the comparison object.

Table 1. The comparison of kind of crime

	Legal Interests	First Statutory Sentence	Incrimination Standard
Article 334(1)	“public health” and “security and administration order of public health”	imprisonment of not more than three years, limited incarceration, or probation and a fine or be sentenced to a fine only	endangering public health or social and public interests, and the circumstances are serious
Article 334	“public health” and “national health department of blood collection, supply administrative system”	not more than five years of fixed-term imprisonment or limited incarceration and a fine	do not meet state- stipulated standards, and enough to endanger human health
Article 330	“public health security” and “national regulation on the prevention and control of infectious diseases”	imprisonment of not more than three years or limited incarceration	causing the spread, or posing a grave danger of the spread, of a Category A infectious disease or an infectious disease against which the measures for the prevention and treatment of Category A infectious diseases shall be taken as determined in accordance with the law
Article 331	“national administrative system for the prevention and treatment of infectious diseases”	not more than three years of fixed-term imprisonment or limited incarceration	violate the relevant provisions of the public health administrative departments of the State Council, causing the spread of contagious diseases' bacterial spawns and viruses and resulting in serious consequences

4.2.1. The Comparison of First Statutory Sentence

Compared with the other three crimes, the statutory sentence of this crime is lighter, the degree of legal interest infringement is smaller and the subjective malignancy is lower. (1) In the principal penalty, the upper limit of the first statutory sentence of this crime is not high, and the lower limit is the lowest. On the one hand, the upper limit of the first statutory sentence for the crime of illegal collection, supply of blood, production and supply of blood products is “five years of fixed-term imprisonment” and the other two reach “three years of fixed-term imprisonment”, which is the same as this crime. On the other hand, the lower limit of the statutory sentence of three crimes is limited incarceration, while this crime has reached a lighter probation. (2) The additional punishment of this crime is also the lightest. The crime of illegal collection, supply of blood, production and supply of blood products requires concurrent fine, and the other two crimes have no additional penalty. However, this crime can impose a single fine without principal penalty. (3) The degree of legal

interest infringement of this crime is smaller and the subjective malignancy is lower. The severity of the penalty, to a certain extent, can reflect the degree of objective infringement of legal interests and subjective malignancy. In the case of similar legal interests, the statutory sentence of this crime is lighter, which indicates the small infringement degree and low subjective malignancy.

4.2.2. The Comparison of Incrimination Standard

By comparing the incrimination standard, this crime has a lower requirement for the degree of infringement of legal interests. In addition, the bottom line standard of the infringement of legal interests in this crime should be limited to dangerous offense. (1) Having the heaviest statutory sentence among four crimes, the crime of illegal collection, supply of blood, production and supply of blood products belong to the specific dangerous offense. In this crime, “enough to endanger human health” shall be satisfied when conviction, and it needs to be judged in combination with judicial interpretation [25]. Once the situation listed in the judicial interpretation occurs, the risk of illness is high for the public exposed to blood products, which is urgent and should be considered as specific dangerous offense. (2) In the crime of obstructing the prevention and control of infectious diseases, “a grave danger of the spread” shall be satisfied. The word “a grave danger” indicates that the actual result of “spread” should reach a certain degree of severity. The degree of infringement of legal interests should be urgent and also belong to specific dangerous offense. (3) In the crime of incriminating the spread of infectious disease strains and toxic species, “causing the spread of contagious diseases’ bacterial spawns and viruses and resulting in serious consequences” means that the crime has caused the actual damage of the spread of infectious disease strains and toxic species when it is incriminated, it is actual damage offense. (4) On the contrary, in the case of similar legal interests, the statutory sentence of the crime of infringing human genetic resources is lighter, and the provision cannot interpret the actual damage. Thus, it can be inferred that it is appropriate to classify this crime as dangerous offense.

4.3. Determination of Abstract Danger

Between the specific danger and abstract danger, the bottom line standard of this crime should be “abstract danger”. In this regard, the infringement of legal interests of the perpetrating act and legislative policy requirements provide the basis. Firstly, the perpetrating act of this crime itself will not directly infringe legal interests. From the perpetrating act, “illegally collects the human genetic resources of China or illegally transports, mails, or carries the human genetic materials of China out of China”, to the danger to the infringement of legal interests, the illegal utilization of human genetic resources is necessary, including the manufacture of biological weapons, launching biological terrorist attacks and other acts. Therefore, the perpetrating act of this crime will not pose a highly urgent danger to legal interests. Secondly, identifying this crime as abstract danger meets the requirements of legislative policy. This crime is in the trend of safety criminal law legislation with “protecting social security as the primary and core value” [26]. It is the product of the active preventive criminal law concept in the legislative practice under the background of timely and effective response to biosafety risks, and it is also the legislative result of implementing the precautionary principle. Although it has not yet touched the core of legal interests, “from the perspective of risk degree and prevention necessity”, it is necessary to criminalize the behavior related to legal interests, the implementation behavior of this crime, and advance to the stage before the occurrence of specific risks, so as to protect the public and even the more significant national interests. [27] Based on the above, identifying the bottom criterion of infringement of the legal interests as “abstract danger” is more reasonable.

5. The Identification Standard of “Serious Circumstances” in the Crime of Infringing Human Genetic Resources

After determining its legal interests and bottom line standard of infringement of legal interests, the specific identification standard of “serious circumstances” in the crime of infringing human genetic

resources can be further analyzed combined with “objective exceeding element”. The identification standard of “serious circumstances” in this crime refers to the danger of illegal utilization of human genetic resources. In this crime, it is the illegal utilization of human genetic resources that may cause specific danger or harmful results. Accordingly, only when the perpetrating act may cause the danger of the illegal utilization of human genetic resources should be considered as “abstract danger”. On the contrary, if this degree of danger is not reached, it is inappropriate to identify it as a crime, and it should be adjusted by administrative law or civil law. Based on this, in the further identification, it can be carried out from two aspects: objective and subjective, respectively, whether the perpetrating act will indeed produce the danger of illegal utilization of human genetic resources, and whether the perpetrator has the possibility of foreseeing it.

First, determine the possibility of illegal utilization of human genetic resources. The focus of this is to determine whether the act of perpetration has objectively reached the degree of infringement of legal interests required by the criminal law. It can be further determined from the form and substance.

In the form determination, the focus is on the dangerous nature of perpetrating act itself. Here, the number, type and other characteristics of the behavior object can be used to assist. For example, if the perpetrator illegally transports a large number of human genetic resources materials with specific representative significance belonging to a specific area of China out of the country without permission, there is the possibility of illegal utilization.

In the substantive determination, the focus is to find out whether there is a certain factor that can promote the possibility of the danger transforming into specific danger or harmful results. Here, it is necessary to make a more comprehensive identification of the perpetrator's qualifications, background and other factors. For instance, although the perpetrator has collected a large number of human genetic resources outside the scope of approval, there is sufficient evidence that the use of them meets the standards, the act has no possibility of specific danger or actual damage.

Secondly, on the basis of affirming the possibility of illegal utilization of human genetic resources, determining whether the perpetrator can foresee the danger of perpetrating acts. The focus of it is to determine whether the perpetrator should be condemned for his behavior. In this process, it can be judged by combining the identity and status of the perpetrator, the mastery of the content of the behavior and the related process. For example, if the perpetrator is the initiator, organizer or leader of the illegal collection of human genetic resources, it should be considered that a foreseeable possibility of the danger exists and the perpetrator should bear the corresponding criminal responsibility.

6. Summary

Through theoretical comparison and analysis, the “serious circumstances” in the crime of infringing human genetic resources should be located as “objective exceeding elements” in the criminal constitution system, the legal interests of this crime should be “public health” and “security and administration order of public health”, and the bottom criterion of infringement of it is abstract danger. On this basis, the identification standard of “serious circumstances” in the crime of infringing human genetic resources refers to the danger of illegal utilization of human genetic resources and should be judged from two aspects: whether there is an objective possibility of illegal utilization of human genetic resources and whether the perpetrator has a foreseeable possibility.

The innovation of this paper is as follows: (1) Focusing on the current legislation, analyzing the legal interests of this crime from the perspective of legal interpretation theory; (2) Determining the bottom criterion of infringement legal interests by means of comparison of similar crimes; (3) Starting from the identification standard of “serious circumstances” to explore the crime of infringing human genetic resources.

At the same time, due to the limited judicial precedent, only a preliminary judgment path is proposed for identifying the “serious circumstances” in the crime of infringing human genetic resources

through theoretical analysis. In the follow-up study, if there are more judicial precedents, further study of the identification standard can be conducted.

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